

INDEX COPEIA, 1994, Nos. 1-4

NEW NAMES

Alganea monicola archidion 662-674
Bathycetopsis 381, 382, 387, 388
Bathycetopsis oliveirai 381-389
Boulengerula fischeri 755-758
Champsodon machaeratus 348-353, 357-359, 363, 366, 370, 371
Champsodon pantolepis 348-352, 355-359, 361-363, 370, 371
Champsodon sagittus 349-352, 357, 360, 363, 364, 370, 371
Creagrus hyssinus 975-979
Cyclothona kobayashii 191-199
Cyprinella alvarezdelvillari 897-904
Lycodon alcalai 159-162, 170, 172
Lycodon bibonius 164, 165, 170, 172
Lycodon chrysoprateros 166, 167, 170, 172
Lycodon solivagus 168-173
Naso caeruleacauda 118-123
Neobrythites elongatus 992-995
Neobrythites unicolor 992-995
Notoraja ochroderma 413-421
Notropis albizonatus 868-884
Notropis suttkusi 82-89
Polyipnus latirastrus 210-214
Thorius arboreus 574-588
Thorius aureus 574-588
Thorius boreas 574-588
Thorius insperatus 580, 584-588
Thorius smithi 583-589

NEW AND ESTABLISHED NAMES

Acanthemblemaria 399, 400, 404
 aspera 401, 403
 greenfieldi 401-403
 maria 401
 paula 401-403
 spinosa 400-403
Acanthophis 1
 antarcticus 860, 861
Acanthuridae 116
Acanthurus 116
 nigrofasciatus 686
Acontias meleagris 98
Acris crepitans 56
Acrocheilus 62, 817
Acrochordidae 726
Acrochordus arafurae 641, 726, 729, 730
Actinistia 828
Adenomera
 andreae 793
 hyaladactyla 749
Adioryx 834
Aequidens pulcher 525
Afrizalus fulvovittatus 1003
Afrocaecilia 750-753
 changamwensis 752, 753, 755
 taitana 752-755
 uluguruensis 753-756
Agistrodon binineatus russeolus 5
Akistrodon 308
 blomhofi 733, 734
 contortrix 304, 307, 308
 intermedius 304, 307
 piscivorus 304, 307
Agosia chrysogaster 624, 625
Ahaetulla
 prasina 170
 p. preocularis 172
Aipysurus laevis 726, 730
Alburnellus percobromus 82, 83
Alburnops oligaspis 83
Algansed 662, 669-674
 aphanea 663, 670, 674
 avia 663, 669, 670, 674
 barbata 663, 669, 670
 monticola 662, 663, 670, 671, 674
 m. archidion 662-674
 m. avia 662
 m. monticola 663, 664, 669-674
 tincella 669
Alligator mississippiensis 533, 913, 917, 970
Alosa pseudoharengus 502
Alticorpus 281-284
 macroleithrum 278-280
Ambystoma 540, 541, 657-660, 705
 altamirani 656, 659, 660
 amblycephalum 659
 andersoni 656, 658, 659
 annulatum 659, 660
 barbouri 695, 1023, 1024
 californiense 658, 659
 dumerili 656-660
 gracile 540, 659
 granulosum 658, 659
 lermaensis 658, 659
 lorae 659, 660
 macrodactylum 540
 maculatum 659
 mexicanum 656-660
 opacum 659, 714
 ordinarium 657-659
 rivarularis 659, 660
 rosaceum 659
 taylori 656, 659
 tigrinum 540, 657-659, 715, 891
Ambystomatidae 659
Ameiva 764, 765

Amphibia 535, 750, 996
Amphiesma 172
stolata 172
vibakari 784
Amphiprion
frenatus 242
perideraion 242-245
"Amphisbaena" 755
Amphiuma 660
Anacanthobatis 420
Ancistrus 978
chagresi 246
Andrias 660
Angolosaurus skoogi 962-974
Anguilla rostrata 960
Anolis 150, 306, 599-609, 614, 618, 744, 767, 778, 946
acutus 777, 778
aeneus 150, 606-609, 776
angusticeps 602
auratus 928
bimaculatus 602
carolinensis 141, 304, 306, 539, 602, 767, 776
distichus 602
gingivinus 602
gondlachi 602, 610
grahami 778
gundlachi 778
homolechis 306
humilis 602
krogi 778
limifrons 602, 606-609, 613-620, 777
lineatopus 606-608, 778
nebulosus 607, 608
(Norops) 602
oculatus 620
opalinus 767-778, 952, 953
porcatus 306
pulchellus 778
sagrei 598, 599, 602, 778
stratulus 778
watsoni 602
Anoplarchus 153-156
purpureocinctus 153-155
Anura 107, 780, 996
Apalone
muticus 802
sinensis 805
spinifera 805
s. spinifera 802
Aphredoderus sayanus 178
Aplodinotus grunniens 182
Aprasia 390-397
aurita 391
haroldi 392-397
inaurita 391-397
parapulchella 392-397
pseudopulchella 392-397
pulchella 391-397
repens 391-397
rostrata 391
smithi 391-397
stiolata 392-397
Apterygodon vittatus 128
Argyropelecus 210, 214
Arhynchobatis 420
Aristochromis 278, 279
Acelichthys 154-157
rhodus 153-156
Aspidites
melanocephalus 860, 861
ramsayi 860, 861
Aspidontus taeniatus 523
Aspredinidae 387
Astatotilapia 281, 282
calliptera 278-282
Astroblepidae 387
Astyanax 978
Aulonocara 278-284
jacobfreibergi 279-284
minutus 278, 279
nyassae 280, 284
Austrelaps
labialis 860, 861
ramsayi 860, 861
superbus 860, 861, 928
Autanichthys 239
giacopinii 238, 239
Axinurus 116, 117
minor 116
thynnoides 119
thynnoides 116-119
Azurina eupalama 834
Bassiana duperreyi 928
Bathyctetopsis 381, 382, 387, 388
oliveirai 381-389
Bathyraja
asperula 413
spinifera 413
(Notoraja) tobikai 413, 415-419
Bitis 640
Blenniidae 155
Boa 3, 4, 7-9
constrictor 3-5
c. imperator 2
Bodianus bilunulatus 523
Boidae 2, 307
Boiga irregularis 860, 861
Bolitoglossa 589
platydactyla 589
rufescens 589
rufescens-occidentalis 589
Bonapartia 199
Boulengerula 750-758
boulengeri 751-758
changamwensis 751-755, 758
denhardti 751
fischeri 755-758
taitanus 751-758
uluguruensis 751-756
Brachionus plicatilis 242, 244
Brachysynodontis batensoda 134
Brasilothphalus 752-754, 758
braziliensis 753, 754, 758
Brevoortia tyrannus 502
Bryconops 239-241

affinis 239
alburnoides 238, 240
caudomaculatus 238-241
cyrtogaster 241
durbibi 240
giacopinii 238-241
impai 239, 240
melanurus 238-241
Buccochromis spectabilis 278, 279
Bufo 693-696, 1001, 1002, 1005
americanus 453, 691-696, 887, 890, 891, 1005, 1023
bufo 695, 1001, 1002
calamita 695, 1002
marinus 887, 888
periglenes 797
woodhousei 887, 891

Cacophis
harriettae 862, 863
krefftii 862, 863
squamulosus 862, 863

Caeciliaidae 750
Caiman crocodilus 907, 908, 915, 916
Callicanthus 117
Callisaurus 305, 306, 980-990
draconoides 491, 928, 980, 985-987
Calloselasma 308
rhodostoma 304, 307, 308
Campostoma 622-624, 626, 628
anomalum 62, 625-628
Caprichromis orthognathus 278, 279
Carassius auratus 218, 222
Carcharhinus melanopterus 646
Careta caretta 67-72, 76, 77
Cathigaster jactator 685, 686
Calotropis mento 524
Catostomidae 178
Catostomus commersoni 499, 500
Caudata 573
Cebidichthys 154, 155
violaceus 154, 155
Centropristes 351
nudivittis 347, 351
Cerastes 640
Ceratophrys 695
Cerberus rhynchos 860, 861, 972
Cetopsidae 381, 387
Cetopsis 382, 383
coecutiens 383, 384, 388
Chaenopsidae 399, 404
Chalcides
chalcides 928-931
ocellatus 931
sexlineatus 619
Chamaeleo pumilus 931
Champsochromis spilorhynchus 278, 279
Champsodon 347-369
antidorsalis 348-354, 358, 370, 371
arfurensis 347, 359, 360
capensis 348-352, 354, 361, 365, 366, 370, 371
curtipes 347, 359, 360
fimbriatus 347-355, 370, 371
guntheri 348-352, 356-360, 363-366, 370, 371
longipinnis 348-357, 366, 370, 371
machaeerus 348-353, 357-359, 363, 366, 370, 371
microphthalmus 366, 367
nudivittis 348-352, 354, 359, 360, 364, 370, 371
omanensis 348-352, 354, 361, 365, 370, 371
pantolepis 348-352, 355-359, 361-363, 370, 371
sagittus 349-352, 357, 360, 363, 364, 370, 371
sechellensis 348-352, 354, 364, 365, 367, 370, 371
snyderi 347-355, 365, 366, 370, 371
vorax 347-349, 353, 356, 365-367, 370, 371

Champsodontidae 347, 349, 367

Characidae 524

Characiformes 975

Chelodina
expansa 802
longicollis 681

Chelonia mydas 34, 37-39, 67-72, 77, 684, 685

Cheloniidae 66

Chelydra 222-224, 229, 230
serpentina 222, 228, 229

Chiasmodontidae 367

Chilotilapia rhoadesi 278, 279

Chiroppterotriton 588

Chiroxiphia paraeolos 646

Chondrichthyes 413, 529, 1029

Chondropython viridis 329, 860, 861

Christinus marmoratus 485, 491

Chrysemys picta 224, 466-469, 1038
p. bellii 1034-1039

Cichlasoma 670
orinocense 525

Clarias 246, 248
batrachus 246, 248
gariepinus 248
lazera 248
liocephalus 246-248

Clariidae 387

Clemmys insculpta 1038

Clinidae 399

Clinocottus 156
acuticeps 156
analis 155
globiceps 153-156
recalvus 154-156

Clinostomus 815
funduloides 16

Cnemidophorus 91, 760, 764, 765
arubensis 764, 765
gularis 761
murinus 760-765, 968
sexlineatus 141
tigris 1047
t. gracilis 1048, 1049
t. septentrionalis 1047-1049
t. tigris 1047-1049

Coelorrhynchus occa 44, 45

Coleonyx variegatus 304, 306, 485, 491

Colostethus 748, 749
chalcopis 749
degranvillei 749
inguinalis 112
marchesianus 747-749
stepheni 747-749
trinitatus 112, 797

Coluber 2-9, 25
constrictor 3-5, 20, 141, 928
Colubridae 159, 307, 329, 330, 860, 861, 1051-1052
Colubrinae 1, 2
Conophis
pallidus 291-294
subcristatus 294
Copadichromis 277
eucinostomus 278-281
mofo 277-284
Cophosaurus 305, 306, 980-990
texanus 234, 235, 980, 985-987
Coregonus
autumnalis 478-480
clupeaformis 478-480
nasus 478-480
sardinella 483
Coris *gaimard* 523
Coryphaenoides 42, 45, 48, 49
acrolepis 43-49
armatus 44-49
a. armatus 43, 45
(Chalinura) 42, 45
cinereus 44
colon 43-49
(Coryphaenoides) 42, 45
filifer 43-49
leptolepis 43-49
lionurus 42
mexicanus 43-49
(Nemotourus) 42, 45
pectoralis 43-49
rupestris 43-49
zaniophorus 43
Creagrus 975-978
beni 975, 978, 979
brevipinnis 976
hyosginus 975-979
Creatochanes 239, 240
caudomaculatus 238
Crocodylus
acutus 916
intermedius 916, 917
johnstoni 916
niloticus 533, 916, 917
Crotalinae 1, 1050-1052
Crotalus 272, 308, 1051
atrox 272, 304, 307, 1050-1052
cerastes 332, 631-642
horridus 641-643
viridis 307, 640-642, 730
Crotaphytrema 751
Crotaphytidae 305
Crotaphytus collaris 928
Cryptobranchus 660
Ctenochaetus strigosus 685, 686
Ctenosaura 466
Curimatella *immaculata* 525
Cyathochromis *obliguidens* 278-281
Cyclothona 191-201, 204
acclinidens 197-200
alba 196-200
atralia 197, 199
braueri 196-200
kobayashii 191-199
microdon 196-199
pallida 195-200
parapallida 191, 198
pseudopalpida 191-201
pygmaea 197
signata 196, 197
sumiae 191, 193, 195, 201
Cyclura *nubila* 291, 294
Cymatogaster *aggregata* 219
Cyphocharax *spilurus* 525
Cyphotilapia *frontosa* 277-280
Cyprinella 175, 622, 897, 898, 903
alvarezdelvillari 897-904
garmani 897, 902, 903
leptida 897, 898, 901-904
lutrensis 10
panarcys 897, 901-904
proserpina 897, 900-904
rutilla 897, 900, 902, 904
sp. 900, 902, 904
venusta 723
xanthicara 897, 900, 902, 904
Cyprinidae 9, 60-62, 178, 622, 662
Cyprinodon 105, 590, 596
atrorus 101, 590
bifasciatus 101, 590
bovinus 595, 596
elegans 590-596
eximius 590
macularius 100, 101
pecosensis 104, 596
pachycephalus 590
radiosus 100-104
variegatus 590-506
Cyprinus *carpio* 14, 178, 956
Cyrtocara 275
moori 275
Dascyllus 522
albisella 521-523
Decapterus
macarellus 834
punctatus 834
sanctae-helenae 834
Deirochelys *reticularia* 1038
Delma 390
Demansia
atra 862, 863
olivacea 862, 863
psammophis 862, 863
torquata 862, 863
Dendrelaphis
calligaster 860, 861
punctulata 860, 861
Dendrobates *pumilo* 112
Dendrobatiidae 107
Denisonia
devisi 862, 863
maculata 862, 863
Dermochelidae 66
Dermochelys *coriacea* 67-72, 76

Desmognathus 541, 693
ochrophaeus 1023
Deuterodon 239
Diadophis punctatus 827
Dicamptodon 705, 708, 710, 711
ensatus 705
tenebrosus 705-716
Dimidiochromis compressiceps 278-280
Dinodon orientalis 733, 734
Dionda 622-624, 627, 628
dichroma 624, 627
episcola 624, 625, 627
rasconis 624
Diplotaxodon 278-281
Dipnoi 935
Dipsosaurus dorsalis 236, 928, 971-973
Docimodus evelynae 278, 279
Dorosoma 180, 181
cepedianum 178, 179
Draco 124, 129
dussumieri 124, 129
jarekii 172
lineatus *spilonotus* 129
spilopterus 129
volans *reticulatus* 124, 128, 129
v. sumatranaus 124-129
Drysdalia
coronata 862, 863
coronoides 862, 863
mastri 862, 863
rhodogaster 862, 863

Echiophis curta 862, 863
Egernia cunninghami 968
Elaphe
climacophora 734
conspicillata 734
guttata 307
obsoleta 141, 307
Elapidae 1, 2, 329, 330, 860, 861
Elapognathus minor 862, 863
Elapsoidea guentheri 751
Elassoma zonatum 178
Eleutherodactylus 780-794
bicumulus 793
coqui 112
euphronides 781-793
gollmeri 793, 794
johnstonei 780-794
marmoratus 787, 793, 794
martinicensis 794
cf. rozei 787
shrevei 781-794
urichi 780-794
u. euphronides 780-792
u. shrevei 780-792
u. urichi 782-793
urichii 792
Elgaria coerulea 928
Elseya 802
latisternum 681, 802, 805
Emblemaria 399, 400
atlantica 401-403

Emblemaria 400
Emoia 1042, 1043, 1046
caeruleoocauda 1043
cynura 1042-1046
impar 1043, 1046
phemura 1042-1046
Emydoidea blandingi 676, 681, 682, 1038
Emydura macquarii 681
Engraulis mordax 244
Enhydrina schistosa 726, 730, 931
Enhydriis
dussumieri 930, 931
polylepis 860, 861
Epinephelus
cruentatus 514
fulvus 514
guttatus 511, 514
itajara 511
striatus 511-514
Epipedobates
femoralis 112, 113, 747
trivittatus 107-114
Eretmochelys imbricata 67-72, 76, 77, 811, 813
Eristicophis 640
Eschrichtius robustus 646
Etheostoma 175, 813, 819, 825
(Belophox) 825
blennioides 818-820
(Boleichthys) 825
chlorosomum 825
davisoni 819, 825
ditrema 825
(Fuscatelum) 824, 825
(Ioa) 825
(Nanostoma) 818, 825
(Oligocephalus) 825
(Osarka) 825
parvipinne 823-825
Pyrrhogaster 825
(Ulocentra) 818-820
(Vailantia) 825
(Villora) 825
vulneratum 500, 501
zonale 818-820
Eulamprus 539
quoyii 928, 931
Eumeces 733, 744
egregius 98, 491
fasciatus 98, 493-497, 928
inxpectatus 141
laticeps 141
lynceum 821-823
okadae 732-745
Euphausia lucensoides 197
Eupomacentrus rectifraenum 522
Eurycea bislineata 715
Exoglossum 622

Fordonia leucobalia 860, 861
Fundulus 134, 175
heteroclitus 216-219, 460, 464
Furina
barnardi 862, 863

diadema 862, 863
dunmalli 862, 863
ornata 862, 863
tristis 862, 863

Gadiformes 42
Gadus morhua 1025, 1026
Galaxias vulgaris 16
Gambelia wislizenii 304
Gambusia 134, 180, 181, 299, 300, 518, 519
 affinis 31, 178, 179, 216-219, 296-300, 538
 a. *holbrooki* 216
holbrooki 296-300, 516-519
Gasterosteus 698
 aculeatus 216, 218, 314-320, 508-510, 698-703, 823
wheatlandi 508-510, 698-703
Gehyra 303, 306
multilata 172
Gekkonidae 484, 491
Gekkonoidea 390
Geotrypetes 750
seraphini 753
Gila 62, 815
 (*Temeculina*) 817
Ginglymostoma cirratum 646, 652-655, 825, 826
Girardinichthys multiradiatus 919, 920
Glanapteryx anguilla 388
Gobiesox fluviatilis 670
Gonostoma 100
Gonyosoma oxycephalum 172
Goodea 670
 cf. *atripinnis* 670
Goodeidae 919
Gopherus agassizii 971
Gurgesiella 420
Gymnallabes 388
Gymnoichthys hildae 238
Gymnophiona 750
Gymnothorax tile 831
Gyrinophilus 693
porphyriticus 1023

Haemulon scudderii 834
Haplochromis 275
 medius 153, 155
Hemiaspis
damelii 862, 863
signata 862, 863
Hemicetopsis 382, 383
candiru 383, 388
macilentus 382, 383
morenoi 382
Hemidactylus frenatus 172
Hemiergis peronii 491
Hemisynodus membrabaceus 130, 134
Hemitilapia oxyrhynchus 278-280
Herpele 750
Hesperoleucus 60, 64
Heterandria 518, 519
formosa 296-300, 516-519

Heteronotia 489
binoei 306, 484-491
maculatus 487
Holbrookia 91, 305, 306
elegans 491
propinqua 303, 491
Hoplias 978
Hoplocephalus
bitorquatus 862, 863
bungaroides 862, 863
stephensi 862, 863
Hoplodactylus maculatus 485
Hoplomyzon 387
Hoplosternum thoracatum 246
Hucho perryi 844
Hybognathus 623-629
amarus 622-625, 628
argyritis 622-628
hankinsoni 622-628
hayi 622-628
nuchalis 622-629
placitus 622-628
regius 622-628
Hybopsis 178, 880
longiceps 883
Hydrophis cyanocinctus 931
Hyla 693, 696, 1002
chrysoscelis 51-58, 695, 1014-1020, 1023
cinerea 52, 56, 57, 422-430
crucifer 411, 890
gratiosa 52, 56, 57
pseudopuma 695
regilla 446-456
rosenbergi 113
squirella 797, 798, 801
versicolor 51-58
Hylodes urichi 792
Hypentelium nigricans 500
Hyperoliidae 996
Hyperolius 996, 997, 1004, 1005
marmoratus 1005
m. taeniatus 996-1005
nasutus 1003
virdiflavus 797
v. nitidulus 996-1005
v. ommatostictus 996-1005
Hypostomus 978
plecostomus 246
Hypsoblennius exstochilis 401
Hypsopops rubicundus 522

Ichthyomyzon
bdellium 499, 501
castaneus 499, 500, 723
gagei 718-724
Ictaluridae 387
Ictalurus 178
 cf. *dugesii* 670
punctatus 1023
Ictiobus 178
Idiocranius 750
Iguana iguana 928

Iguaninae 305
Iodotropheus sprengerae 278, 279
Irolita 413, 418–420
Istigobius diadema 831, 832

Kana 609
Kinosternidae 676
Kinosternon
baurii 676
flavescens 676
f. flavescens 676
leucostomum 676
scorpioides 676
subrubrum 676, 677, 805
Krameria parvifolia 635

Labeotropheus fuelleborni 278–280
Labidesthes sicculus 178
Labridae 520
Labrisomidae 399
Labrodes 120, 523
dimidiatus 521–523, 688
phthirophagus 520–523, 685, 688

Lacerta 929
agilis 539, 929
viridis 98
vivipara 929

Lacertidae 484
Lacertilia 1042
Lachesis muta 1050, 1052

Lampræta
aepyptera 718
ayresi 502
fluvialis 502, 723
geminis 502
minima 502, 503
spadicea 499–502

Lampropeltis getulus 141
Latimeria 828
chalumnae 828
Lavinia 60–64, 815, 816
exilicauda 61, 63, 816
symmetricus 15

Lechriodus 695
Lepidochelys 67, 68, 72, 76
kempi 67–71, 77
olivacea 67–71, 77

Lepidodactylus balioburius 172
Lepidosiren paradoxus 341
Lepisosteus
oculatus 246
osseus 178, 246
Lepomis 178–181, 517, 1023
auritus 1023, 1024
macrochirus 500
punctatus 281

Leptodactylidae 780
Leptodactylus
lugubris 485
pentadactylus 695, 696

Leptotyphlopidae 307

Lialis 390
Liasis
childreni 860, 861
fuscus 860, 861
maculosus 860, 861
olivaceus 860, 861
perthensis 860, 861
stimsoni 860, 861

Lichochromis 284
acuticeps 284
tenuis 928

Lipophrys pholis 153, 155

Loricariidae 387
Luxilus cornutus 500
Lycodon 159–163, 170, 172
alcalai 159–162, 170, 172
aulicus 172
a. capucinus 159, 170
bibonius 164, 165, 170, 172
chrysopraterrus 166, 167, 170, 172
dumerili 159, 170
mulleri 159, 170–173
solivagus 168–173
subcinctus sealii 159, 170
tessellatus 170, 172

Mabya 931
bistriata 928
heathi 929

Macrouridae 42
Malaclemys terrapin *teesta* 681
Malacoglanis gelatinosus 388
Malacorhina cirrifer 1032
Maravichromis anaphrymrus 278, 279
Margrethia 199
Masticophis 307
flagellum 23–25, 307, 640
Maybuya 172
Meda fulgida 9, 10
Melanochromis auratus 278, 279
Micropterus 204–209
coosae 204
dolomieu 204–209, 819
punctulatus 204–209
salmoides 178, 503, 1023
s. floridanus 204
s. salmoides 204
treculi 204

Moenkhausia schultzi 239

Morelia
amethystina 860, 861
spilota 641–643
s. spilotus
s. variegatus 328

Moxostoma 500
austrinum 502
cf. congestum 670

Mycteroperca 511
microlepis 511
phenax 511
tigris 511–515

venenosa 511

Myliobatidae 529
Myliobatis
aguila 529
californica 529
Mylopharodon 60–64, 815, 816
conocephalus 61–63, 816
Myron richardsoni 860, 861

Naja 3–9
naja 3–5, 304, 307
n. naja 2
Naseus thynnoides 119
Naso 116–118
(Axinurus) 116, 118
caeruleacauda 118–123
caesius 116
fagani 122
hexacanthus 116, 117, 123
maculatus 116
minor 117–123
thynnoides 116–123
vulminigii 116

Natatar depressa 67–72, 76

Natris 172
tessellata 1050–1053

Neobrythites 992, 993, 995
elongatus 992–995
gilli 992
marginatus 992, 995
ocellatus 992, 993
unicolor 992–995

Neoceratodus forsteri 935, 936, 940–942

Neochromis nigricans 277

Neoseps 92–97
reynoldsi 91–99

Nerodia 307, 693
erythrogaster 227
fasciata 307
rhombifera 22, 307, 928
sipedon 272, 642, 643, 1023
spilogaster 172
stolata 172

Nimbochromis
livingstoni 278, 279
polystigma 278, 279

Nocomis 622, 623
biguttatus 624
micropogon 501

Notechis scutatus 928

Notemigonus 815
chrysoleucus 62, 63, 178, 815–817

Notophthalmus 693, 705
viridescens 694

Notoraja 413, 418
ochroderma 413–421
subtilispinosa 417, 418
tobitukai 416–419

Nototriton 588

Notropis 83, 84, 175, 879, 897
albizonatus 868–884
alborus 869, 872, 873, 879, 880
atherinoides 82, 83
cardinalis 89

chihuahua 869, 872, 873, 879–883
deliciosus 869
greeni 869, 872, 873, 880
heterodon 869
heterolepis 879, 880
ludibundus 868, 869, 872, 873, 879–883
maculatus 880
mekistocholas 879, 880
(Notropis) 84
percobromus 82
procne 868–887
rubellus 82–89
r. micropteryx 83
r. rubellus 83
rubricorpus 83
r. retrovelis 83
r. rubricorpus 83
rupestris 880
spectrunculus 870, 879
stilbius 83, 84
stramineus 879
suttkusi 82–89
volucellus 869, 879, 880

Noturus *flavus* 500

Oedura *tryoni* 765

Oligocottus 156
maculosus 153–156
rimensis 153–156
snyderi 153–156

Oligodon 162

Oncorhynchus
kiwai 320
mykiss 16, 320, 499, 706, 709, 844

Ophidiidae 992

Ophidiocephalus 390

Opsopoeodus *emiliae* 880

Oregonichthys 815

Orthodon 62, 817

Orthopristis *forbesi* 834

Oryzias latipes 216–219

Osmeridae 184

Osteichthyes 828, 935

Osteolaemus *tetraspis* 533

Osteopilus *septentrionalis* 695

Otopharynx *ovatus* 278, 279

Oxyjulis *californica* 688, 689

Pachytriton 660

Paleobatrachus 232, 233

Paracatopis 382, 383
bleekeri 381

Paralichthys *dentatus* 458, 463

Pavoraja 413, 418, 420

Pelobates *cultipes* 695

Pelodytes *punctatus* 695

Pelomedusa *s. subrufa* 676, 681, 682

Percidae 818

Perciformes 116, 347

Percina 175

Petrosaurus 305

mearnsi 303
Petrotilapia genalutea 278, 279
tridentiger 278, 279
Phenacobius 622
Philomachus pugnax 646
Phoxinus
laevis 218
phoxinus 502
Phrynosoma 305, 306, 539
Phyllodactylus homolepidurus 485, 491
Piabucina festae 246
Pimelodella cruxenti 238
Pimelodidae 387
Pimephales 178, 622
Pisces 520, 662, 818, 992
Pituophis melanoleucus 307, 928
Placidochromis subocularis 278, 279
Plagopterus 62, 817
Plecoglossus altivelis 184
Plectropomus leopardus 511
Plethodon jordani 540
Plethodontidae 573
Pleuroderma 793
brachyops 793
Pleuronectes
olivaceus 463
platessa 463
Podocnemis 802, 805
Poecilia 134, 978
chica 32
formosa 27, 504-507
latipinna 27, 504-507
Poeciliidae 919
Poeciliopsis occidentalis 519
Poecilurichthys myersi 238
Pogona (Amphibolurus) barbatus 497
Pogonia barbata 928
Polyipnus 210-214
aquavitus 212
danae 212
elongatus 214
fraseri 214
inermis 214
kiwiensis 214
latirastrus 210-214
meteori 212
oluolus 214
parini 214
paxtoni 214
ruggeri 214
spinosus 212, 214
stereope 214
tridentifer 214
triphanos 212
unispinus 212
Polypedates leucomystax 162, 172
Pomacanthus
imperator 522
wardi 522
Pomoxis 178-181
Porthidium 308
Pristigenys 834
Pristobrycon 524, 527
Prosopium cylindraceum 478-480
Protomelas kirkii 278, 279
Psammobatis 420, 1029, 1032
bergi 1029
extenta 1029-1032
glansdissimilis 1029-1032
lentiginosa 1030, 1032
normani 1030
parvacauda 1030
rudis 1030
rutrum 1030-1032
scobina 1030
Psammodynastes pulverulentus 172
Pseudechis porphyriacus 643, 928
Pseudemoia entrecasteauxii 926-931
Pseudocetopsis 382, 383, 388
amphiloxa 383
cf. minutus 383
Pseudocrenilabrus philander 282
Pseudoeurycea 588
bellii 588
juarezi 580, 588
saltator 588
smithii 588
werleri 588
Pseudopriacanthus 834
Pseudoraja 413, 418
Pseudotropheus
elongatus 278, 279
heteropterus 278, 279
zebra 278-280
Ptychocheilus 60-64, 815, 816
arciferous 60
grandis 15, 60, 63
lucius 60-64
oregonensis 60-63
prelucus 60
umpquae 60-63
Pygianops eigenmanni 387
Pygocentrus 524, 525
caribe 527
notatus 527
Pygopus 390
lepidopodus 390
Python reticulatus 172
Pyxicephalus 695

Raja extenta 1031-1032
Raja 419, 433
cirrifera 1032
(Dipturus) 433
erinaceus 435, 1030, 1032
floridana 433-444
ocellata 435
(Raja) 419
(Rostroraja) 419
tevani 433-444
Rajidae 1029
Rajoidea 413
Ramphotyphlops braminus 172
Rana 238, 693-696
catesbeiana 53, 113, 454, 887, 1005
clamitans 454, 696, 1023
esculenta 407-411

lessonae 407-411
pipiens 56, 453-455, 887, 890, 891
ridibunda 411
septentrionalis 797
stegastes 404
svlatica 454, 691-696, 1024
temporaria 238, 695, 1005
Regina
grahami 929
septemvittata 272
Reptilia 676, 1042
Rhabdophis 172
spilogaster 172
Rhamphochromis 279, 284
 sp. 280, 281
Rheodyles leukops 802
Rhinichthys 62, 817
atratulus 500
 (=Tiaroga) *cobitus* 817
Rhinoptera javanica 653, 654
Rhyacosiredon 656-660
alitimirani 657-659
leorae 657, 659
rivascularis 657-659
zempalaensis 657
Richardsonius 62, 815-817
balteatus 815-817
egregius 815-817
Rivulus 978

Salmo
melanurus 240, 241
trutta 16, 500, 960
Salvelinus 844
alpinus 844, 847, 960
fontinalis 16, 499, 844
leucomaenis 844
namaycush 500, 843-849
Sarcoglanis simplex 388
Sarcopterygii 828
Sargocentron 834
Sator 305
Sauromalus obesus 971
Scaphiopus 695
couchii 372, 373, 379, 380
hammondi 379
Scardinius erythrophthalmus 815-817
Scarus sp. 686
Sceloporus 91, 304-306, 968
aeneus 928
 a. *aeneus* 496
bicanthalis 928
graciosus 944-954
jarrovi 234-236, 303, 1007-1011, 1040-1042
merriami 150, 305, 609, 1007
occidentalis 150, 228-229, 236, 945, 968
undulatus 136-151, 928, 1011
variabilis 303-306
virgatus 234-236, 1041
Schistometopum 751
gregorii 751, 753
Scincella lateralis 145
Scolecomorphidae 750
Scolecomorphus 751, 758
kirkii 755, 758
Scolotes *gronovii* 98
Scomber *scombrus* 960
Scophthalmus maximus 1025
Scyliorhinus torazame 646
Semotilus atromaculatus 500
Serpentes 159, 726
Serranochromis 277
robustus 277-281
Serrasalmidae 524
Serrasalmus 524-527
altuvei 524
elongatus 524
irritans 527
mendinai 527
Shinisaurus crocodilurus 930
Siluriformes 381
Sistrurus 308
catenatus 307, 642
Solea solea 463
Spalerosophis cliffordi 1052
Spheniscus 834
Sphenomorphus 539
Sphenops sepsoides 91, 94, 98
Sphyraena tiburo 646
Staurotypus salvini 676
Stegonotus 162
Stenodus 472
leucichthys 472, 483
l. leucichthys 472
l. nelma 472-483
Stephanolepas muricata 689
Sternoptychidae 210
Sternoptyx 210, 214
Sternotherus 677
carinatus 676-678
depressus 230
minor 676-681, 805
odoratus 676, 677, 805
Stichaeidae 153
Stomiiformes 191, 210
Sylvacacilia grandisonae 753
Sympterygia 420
Synodontis
afrofischeri 131-135
nigriventralis 130-134
Synodus
lacertinus 834
lucioceps 834
Taeniochromis holotaenia 278, 279
Takydromus tachydromoides 734
Taurulus (Acanthocottus) bubalis 156
Teiidae 484, 760
Teleostei 60, 191, 347, 622
Terrapene carolinae 468, 470
Thalassoma
bifasciatum 1025
duperryi 523, 684-689
lunare 684
Thamnophis 307, 537, 539
butleri 538, 539

eques 920
marcianus 226, 307, 538, 539
melanogaster 538, 539, 920
ordinoides 263–273, 928
parietalis 491
proximus 227
radix 272, 538, 539
sirtalis 263–273, 304, 307, 538, 539, 926, 929, 931
Thermus agumaticus 53
Thorius 573–589
 arboreus 574–588
 aureus 574–588
 boreas 574–588
 insperatus 580, 584–588
 maccougalli 574–588
 maxillabrochus 584
 narismagnus 585
 narisovalis 578, 583, 587
 pennatulus 585
 pulmonaris 583, 586, 587
 schmidti 577, 578, 584
 smithi 583–589
Tinca tinca 218
Trachemys
 scripta 470, 598, 1038
 s. elegans 676
 s. scripta 682
Trachinoidea 367, 368
Trematocranus placodon 278, 279
Triaenodon obesus 646
Tribolium 92
Trichogaster leeri 246
Tricomycteridae 387
Trimeresurus 308
 flavomaculatus 172
 f. mcgregori 172
Tripterygiidae 155
Triturus 535–537, 705
 alpestris 535, 536
 carnifex 535
 cristatus 535, 536
 helveticus 535, 536
 marmoratus 216, 535
 (Mesotriton) 535
 (Neotriton) 535
 (Paleotriton) 535
 vulgaris 535, 660
Tropheus moorei 278–280
Tropiduridae 305
Tupinambis 806–808
 nigropunctatus 806, 808
 teguixin 806–808
Typhlacontias brevipes 98
Typhlobelus ternetzi 387
Typhlopidae 484
Typhlosaurus gariepensis 765
Tyrannochromis macrostoma 278, 279
Uma 305, 306
Urodela 535
Uromastix acanthinurus 971
Urosaurus 305
 ornatus 234, 235, 1041
Uta 305
 stansburiana 491, 970, 972, 981
Varanus 307
 gouldii 293, 294
 niloticus 304, 306
 panoptes 293, 294
 rosenbergi 289–294
 salvator 172
 varius 289
Vipera 2–4, 7–9
 ammodytes 2–5
 berus 332, 333, 928, 931
Viperidae 1, 2, 307, 1050
Virginia striatula 928
Xantusia vigilis 931
Xiphister atropurpureus 155, 156
Yurinia alta 670
Zebrasoma flavescens 686
Zenarchopterus rasori 831

SUBJECT INDEX

COPEIA, 1994, Nos. 1-4

ACTIVITY, *Coluber constrictor* (radiotol., popn. compar.) 20-26; *Neoseps reynoldsi* (diel & seas. pttns.) 91-99; *Draco volans sumatranaus* (male-female diff.) 124-130; *Varanus rosenbergi* (seas. var., rel. to popn. energetics) 289-295; *Paralichthys dentatus* (diel cycle rel. to burying beh. in metamorphs. & juvs.) 458-465; *Crotalus cerastes* (radiotol., diel, seas. & age-sex class diff.) 631-645; *Dicamptodon tenebrosus* (larr. diel act., feeding, ontogen. change) 705-718; *Tupinambis teguixin* (diel cycle rel. to free-living body temps. in lg. lizard) 806-808.

AGE, *Sceloporus undulatus* (at matur., age struct. in popn.) 136-152; *Dorosoma cepedianum*, *Pomoxis* spp., *Etheostoma* spp., *Percina* spp., *Lepomis* spp., *Gambusia affinis*, *Cyprinella* spp., *Notropis* spp. (seas. diff. in larv. & juv. fish distrib. in floodplain river) 174-183; *Paralichthys dentatus* (rel. to burying beh. in metamorphs. & juvs.) 458-465; *Stenodus leucichthys nelma* (dev. from egg to juv. stages) 472-484; *Labrodes (phthirophagus, dimidiatus)* (rel. to shifting btwn. juv. & adult coloration) 520-524; *Crotalus cerastes* (age-sex class & seas. diff. in act. & mvmnts.) 631-645; *Acrochordus arafurae* (late sex. matur., gender diff. in age-spec. growth rates) 726-731; *Eumeces okadae* (and size at matur., divers. in island popns. rel. to pred.) 732-747; *Caiman crocodilus* (at sex. matur., rel. to body size, in wild) 907-919.

BEHAVIOR, *Poecilia latipinna* (male response to female advertisement, mating beh.) 27-34; *Careta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Lepidochelys (kempi, olivacea)*, *Natator depressa* (reprod. beh. rel. to body size, diff. btwn. spp. & popns.) 66-81; *Cyprinodon radiosus* (male mate choice unrelated to female size) 100-107; *Epipedobates trivittatus* (male territ. & female mate select., pat. care) 107-115; *Draco volans sumatranaus* (video, soc. beh., activ., territ., crtshp., locomotion, myrmecophagy) 124-130; *Synodontis (nigriventris, afrofischeri)* (upside-down swimming) 130-135; *Cheydya serpentina* (overwintering) 222-226; *Sceloporus (jarrovi, virgatus)*, *Urosaurus ornatus*, *Cophosaurus texanus* (timing of tongue-flicking) 234-237; *Amphiprion periderion* (video of feeding strikes by larvae) 242-246; *Clarias liophthalmus* (synchronous air-breathing) 246-249; *Thamnopis (sirtalis, ordinoides)* (solar orient. & pherom. following in non-migrat. popns.) 263-274; *Varanus rosenbergi* (body temp. during diff. beh., rel. to popn. energetics) 289-295; snakes (8 fams., 374 spp.) (male-male combat rel. to sex. size dimorph.) 326-346; *Paralichthys dentatus* (burying beh. in metamorphs. & juvs.) 458-465; *Chrysemys picta* (body size rel. to gait & speed on land) 466-471; *Petromyzon marinus*, *Ichthyomyzon*

(*castaneus, bdellium*), *Lampetra spadicea* (host choice) 499-504; *Poecilia (latipinna, formosa)* (compet. beh. btwn. females for mates, unisex./bisex. diff.) 504-508; *Myctoperca tigris* (aggreg., crtshp., spawning, video data) 511-516; *Labrodes (phthirophagus, dimidiatus)* (soc. beh. rel. to shift btwn. juv. & adult coloration) 520-524; *Triturus (helveticus, alpestris, cristatus)* (egg-wrapping at oviposit.) 535-537; *Anolis limifrons* (apparent sex. size dimorph. due to small males hiding) 613-622; *Crotalus cerastes* (locom., activ., home range, hiber., migr., age-sex class diff.) 631-645; *Ginglymostoma cirratum* (mating incl. cop., video) 646-656; *Sternotherus minor* (crtshp. beh., video data) 676-684; *Thalassoma duverryi*, *Chelonia mydas* (turtles posture for cleaner wrasses) 684-690; *Rana sylvatica*, *Bufo americanus* (opportun. pred. by tdpds.) 691-697; *Gasterosteus (aculeatus, wheatlandi)* (repro. & compet. beh., compet. & coexist.) 698-704; *Etheostoma zonale* (repro. beh. in phylogen. anal.) 818-821; *Etheostoma parvipinne* (spawning beh. in captiv., video data) 823-825; Australian snakes (4 fams., 103 spp.) (male-male combat rel. to body size) 851-867; *Girardinichthys multiradiatus* (soc. beh. in repro. seas., crtshp.) 919-925; *Sceloporus graciosus* (complex of "push-up" display in wild, info. theory anal.) 944-955; *Callosaurus draconoides*, *Cophosaurus texanus* (antipred. beh. rel. to environ. factors) 980-992; *Rana sylvatica*, centrarchid fishes (frogs choose fish-free ponds to lay eggs) 1023-1025.

BLOOD, *Bufo marinus* (oxy. capac. & ventricle size rel. to physiol., morph. & exercise) 887-896; *Natrix tessellata*, *Crotalus atrox* (inhib. of *Crotalus* venom hemorrhage effs. by blood & tiss. of embryo. & ad. *Natrix*) 1050-1053.

CALLS, *Hyla chrysoscelis* × *versicolor* (of natural hybrids) 51-59; *Epipedobates trivittatus* (rel. to territ. & mating success) 107-115; *Eleutherodactylus (urichi, euphronides* n. sp., *shrevei* n. sp.) 780-796.

CHROMOSOMES, *Ptychocheilus (lucus, grandis, umpsquae, oregonensis)*, *Mylopharodon conocephalus*, *Lavinia exilicauda* (NOR kar. in clad. anal.) 60-65; squamate reptiles (56 spp.) (rDNA loc., phylogen. anal.) 302-313; *Richardsonius (balteatus, egregius)* (compare G-banding of NOR's, genome sizes, in phylogen. anal.) 815-818; *Ginglymostoma cirratum* (first triploid indiv. chondrichthyan) 825-827.

COLORATION, *Notropis suttkusi* n. sp. (breeding & non-breeding) 82-90; *Naso (Axinurus) (thynnooides, minor, caeruleacauda* n. sp.) (diel color changes) 116-124; *Bathyctopsis* n. gen. *oliveirai* n. sp. (evol. of eyeless depigmented catfishes) 381-390; *Hyla cinerea* (gender diff., resp. to brightness & temp.) 422-432; *Myctoperca tigris* (breeding) 511-516;

Labrodes (phthirophagus, dimidiatus) (shift btwn. juv. & adult coloration) 520–524; *Cnemidophorus murinus* (unusual sex. dimorph.) 760–766; *Hyla squirella* (sex dimorph. in ptn. & intens.) 797–802; *Etheostoma parvipinne* (color change in males during spawning) 823–825; *Cyprinella alvarezdelvillari* n. sp. (bright breeding males) 897–906; *Creagrutus hyginus* n. sp. (descript.) 975–979; *Emoia (cyanura, impar)* (melanism common) 1042–1047.

COMPETITION, *Cyprinella lutrensis*, *Meda fulgida* (compet. displacement of native by introd. fish) 9–19; *Poecilia latipinna* (in male access to females, male body size diffs.) 27–34; *Epipedobates trivittatus* (territ. & calls rel. to male mating success) 107–115; *Draco volans sumatrana* (male-male territorial beh.) 124–130; *Gambusia holbrooki*, *Heterandria formosa* (pred. vs. compet. btwn. spp., exper. popns.) 296–302; snakes (8 fams., 374 spp.) (eff. of male-male combat on sex. size dimorph.) 326–346; *Acanthembelaria* (greenfieldi, paula, maria, spinosa, aspera), *Emblemaria* (atlantica, pandionis) (in hab. partit. in hole-dwelling fishes) 398–405; *Poecilia (latipinna, formosa)* (compet. beh. btwn. females for mates, unisex./bisex. diffs.) 504–508; *Gambusia holbrooki*, *Heterandria formosa* (btwn. spp. mostly due to pred. on small *H. formosa* by *G. holbrooki*) 516–520; *Labrodes (phthirophagus, dimidiatus)* (rel. to shift btwn. juv. & adult coloration) 520–524; *Anolis limifrons* (sex. size dimorph. due to lg. male compet. against small males) 613–622; *Gasterosteus* (aculeatus, wheallandi) (for nest sites, ecol. of coexist.) 698–704; *Eumeces okadai* (rel. to divers. in life hist. traits in island popns.) 732–747; *Cnemidophorus murinus* (rel. to poor food qual., unusual repro. mode) 760–766; *Girardinichthys multiradiatus* (btwn. males in breeding seas. rel. to sex. dimorph.) 919–925.

DENTITION, *Aprasia* (8 spp.) (sex. dimorph. in dent., myrmecophagy) 390–398.

DEVELOPMENT, *Cyprinodon radiosus* (egg size unrel. to fry size) 100–107; *Amphiprion perideraion* (feeding efficiency improv. from hatching) 242–246; *Rana (lessonae, esculenta)* (mat. & pat. contrib. to hatchl. dev. & size) 406–412; *Paralichthys dentatus* (of burying beh. in metamorphs. & juvs.) 458–465; *Chrysemys picta* (gait & speed on land, juv. vs. adult) 466–471; *Stenodon leucichthys nelma* (descript. from egg to juv. stage) 472–484; *Eumeces fasciatus* (of embryos after oviposition) 493–498; *Gasterosteus wheallandi* (low lateral plate counts due to neoteny) 508–511; *Labrodes (phthirophagus, dimidiatus)* (shift btwn. juv. & adult coloration) 520–524; *Rhacosiredon* = *Ambystoma (altamirani, rivularis, leorae)*, *Ambystoma (dumerilii, mexicanum, tigrinum, ordinarium)* (unique type paedomorph., rel. to ecol.) 656–662; *Colostethus stepheni* (unique devel. mode) 747–750; squamate reptiles (standardized criteria for embryon. nutrit. determ.) 925–935; *Hyperolius (viridiflavus, omastictus, v. nitidulus, marmoratus taeniatus)* (larv. adapt. to crowding aff. metamorphs.) 996–1007; *Natrix tessellata*, *Crotalus atrox* (of antihemorrhage activ. of *Natrix* to *Crotalus* venom) 1050–1053.

DIGESTION, *Angulosaurus shooga* (effic. & gut pass. time w/ diff. diets & temps.) 962–974.

DISTRIBUTION, *Cyprinella lutrensis*, *Meda fulgida* (introd. fish reduces distrib. of native) 9–19; *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata* (geogr. distr. of nesting colonies & body sizes) 66–81; *Notropis suttkusi* n. sp. 82–90; *Naso (Axinurus)* (thynnoides, minor, caerulea, caudata n. sp.) 116–124; *Lycodon (alcalai* n. sp., *bibonius* n. sp., *chrysopateros* n. sp., *solivagus* n. sp.) 159–174; *Cyclothona kobayashii* n. sp. 191–204; *Champodon* (10 spp., *sagittus* n. sp., *pantolepis* n. sp., *machaeratus* n. sp.) (of all 13 spp.) 347–371; *Bathyctopsis* n. gen. *oliveirai* n. sp. 381–390; *Thorius* (*aureus* n. sp., *arboreus* n. sp., *boreas* n. sp., *smithi* n. sp., *insperatus* n. sp., *macdougalii*) (endemic, sympatry) 573–590; *Eleutherodactylus (euphorionides* n. sp., *shrevei* n. sp.) 780–796; *Eleutherodactylus urichi* (revised dist.) 780–796; *Notropis albizonatus* n. sp. 868–886; *Cyprinella (alvarezdelvillari* n. sp. and other 6 spp. of *leptida* clade) 897–906; *Creagrutus hyginus* n. sp. 975–979; *Neobrythites (unicolor* n. sp., *elongatus* n. sp.) 992–995.

DUVERNOY'S GLAND, *Natrix tessellata*, *Crotalus atrox* (venom resist. in embryo rel. to devel. of Duvernoy's gland) 1050–1053.

ECOLOGY, *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Lepidochelys (kempi, olivacea)*, *Natator depressa* (reprod. diffs. btwn. spp. & popns., rel. to body size) 66–81; *Sceloporus undulatus* (popn. chars. var. by habitat, perch chars.) 136–152; *Dorosoma cepedianum*, *Pomoxis* spp., *Etheostoma* spp., *Percina* spp., *Lepomis* spp., *Gambusia affinis*, *Cyprinella* spp., *Notropis* spp. (larv. & juv. fish commun. dynamics in floodplain river) 174–183; *Cyclothona kobayashii* n. sp. (notes) 191–204; haplochromine cichlids (32 gen., 40 spp.) (very low genet. divers., wide ecol. divers.) 274–288; *Varanus rosenbergi* (temperate popn. energetics, rel. to tropical popns.) 289–295; *Gasterosteus aculeatus* (varies btwn. popns. w/ var. degree of pelvic reduction) 314–325; *Bathyctopsis* n. gen. *oliveirai* n. sp. (notes) 381–390; *Acanthembelaria* (greenfieldi, paula, maria, spinosa, aspera), *Emblemaria* (atlantica, pandionis) (ecol. diffs. in fish assemblage struct.) 398–405; *Paralichthys dentatus* (burying beh. in metamorphs. & juvs.) 458–465; *Thamnophis (radix, sirtalis, butleri, marcianus, melanogaster)* (min. temp. toler. rel. to latitude of sp. range) 537–540; *Anolis sagrei* (null growth-based model used to anal. ecol. factors in sex. size dimorph.) 598–613; *Crotalus cerastes* (ecol. signif. of mvmt. ptns., seas. & age-sex class diffs.) 631–645; *Rhacosiredon* = *Ambystoma (altamirani, rivularis, leorae)*, *Ambystoma (dumerilii, mexicanum, tigrinum, ordinarium)* (partial paedomorph., rel. to ecol.) 656–662; *Rana sylvatica*, *Bufo americanus* (impact of opportun. pred. by tdpis. on commun.

struct.) 691–697; *Dicamptodon tenebrosus* (possible commun. struct. eff. of select. pred. by salamander larv.) 705–718; *Eumeces okadae* (ecol. correl. of life hist. divers. in island popns.) 732–747; *Cnemidophorus murinus* (poor food qual. rel. to unusual repro.) 760–766; *Eleutherodactylus (urichi, euphronides n. sp., shrevei n. sp.)* (notes) 780–796; *Salvelinus namaycush* (genet. diverg. btwn. 3 apparent ecophenotypes) 843–850; Australian snakes (4 fams., 103 spp.) (body size major factor in interspp. ecol. diff.) 851–867; *Notropis albinzonatus* n. sp. (notes) 868–886; *Caiman crocodilus* (repro., seas., in wild) 907–919; *Callisaurus draconoides*, *Cophosaurus texanus* (antipred. beh. rel. to environ. factors) 980–992; *Sceloporus jarrovi* (yearly fluct. in survival at highest elev. of sp. distrib.) 1040–1042.

EGGS. *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Lepidochelys (kempfi, olivacea)*, *Natator depressa* (# & size rel. to body size, spp. & popn. compar.) 66–81; *Cyprinodon radiosus* (size unrel. to size of mother or fry) 100–107; *Plecoglossus altivelis* (size & # rel. to salin. & temp. toler.) 184–190; *Aprasia* (8 spp.) (ovipar.) 390–398; *Stenodus leucichthys nelma* (descript., compare to other sympatric whitefishes) 472–484; *Eumeces fasciatus* (dev. of embryos after ovipos.) 493–498; *Triturus (helveticus, alpestris, cristatus)* (egg-wrapping reduces egg pred.) 535–537; *Rana sylvatica*, *Bufo americanus* (opportun. pred. by tdpls.) 691–697; *Ichthyomyzon gagei* (geogr. var. in size) 718–725; *Eumeces okadae* (size divers. in island popns. rel. to pred.) 732–747; *Cnemidophorus murinus* (very large) 760–766; *Anolis opalinus* (mat. size rel. to egg size not #) 767–780; sea turtles (cheap method to meas. daily av. nest temp.) 808–811; *Etheostoma zonale* (egg depos. beh. in phylogen. anal.) 818–821; *Etheostoma lynceum* (eff. of diff. drying temps. on egg weight meas.) 821–823; *Etheostoma parvipinne* (spawning beh., egg attachment) 823–825; *Caiman crocodilus* (size, rel. to mat. & clutch size, seas. in wild) 907–919; squamate reptiles (standardized criteria for embryon. nutrit. determ.) 925–935; *Neoceratodus forsteri* (descript., pathol. in wild eggs hatched in lab) 935–943; *Rana sylvatica*, centrarchid fishes (frogs choose fish-free ponds to lay eggs) 1023–1025; *Chrysemys picta bellii* (size & shape var. btwn. popns., rel. to mat. & clutch size) 1034–1040; *Natrix tessellata*, *Crotalus atrox* (*Natrix* embryos inhibit *Crotalus* venom) 1050–1053.

ENDANGERED SPECIES. *Chelonia mydas* (natal homing, popn. struct., mtDNA evid.) 34–41; *Ptychocheilus (lucius, grandis, umpquae, oregonensis)*, *Mylopharodon conocephalus*, *Lavinia exilicauda* (phylogen. anal., possible n. sp. of *Ptychocheilus*) 60–65; *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Lepidochelys (kempfi, olivacea)*, *Natator depressa* (reprod. diff. btwn. spp. & popns., rel. to body size) 66–81; *Notropis suttkusi* n. sp. (possibly endang.) 82–90; *Gasterosteus aculeatus* (conserv. of popns. w/ pelvic reduction) 314–325; *Mycteroptera tigris* (aggreg. spawning may endanger this sp.) 511–516; *Cyprinodon (elegans, variegatus)* (low level hybrid. of endang. *C. elegans* by introd. *C. variegatus*) 590–597; *Thalassoma duperreyi*, *Chelonia mydas* (wrasses remove parasites from endang. turtles) 684–690; sea turtles (cheap method to meas. daily av. nest temp.) 808–811; *Eretmochelys imbricata* (growth rates in wild juvs., mark & recap.) 811–814; *Notropis albinzonatus* n. sp. (n. sp. endang., hab. alter.) 868–886.

EVOLUTION. *Naja naja*, *Vipera ammodytes*, *Coluber constrictor priapus*, *Boa constrictor imperator* (of front-fanged venom sys.) 1–9; *Poecilia latipinna* (sex. select. in access to females) 27–34; *Hyla chrysoscelis* × *versicolor* (evid. of select. against hybrids) 51–59; *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Lepidochelys (kempfi, olivacea)*, *Natator depressa* (evol. consequences of life hist. diff. btwn. spp. & popns.) 66–81; *Neoseps reynoldsi*, *Sphenops sepsoides* (physiol. convergence in sand-swimming lizards) 91–99; *Cyprinodon radiosus* (lack of correl. btwn. size of mother, eggs, & fry) 100–107; *Epipedobates trivittatus* (evid. for select. for female mate choice) 107–115; *Plecoglossus altivelis* (select. factors on egg size) 184–190; *haplochromine cichlids* (32 gen., 40 spp.) (evid. of rapid evol., mtDNA data) 274–288; squamate reptiles (56 spp.) (evol. rels. informed by clad. anal. of rDNA loc) 302–313; *Gasterosteus aculeatus* (of pelvic reduction, rapid separate evol. in diff. popns.) 314–325; snakes (8 fams., 374 spp.) (select. factors in sex. size dimorph.) 326–346; *Bathycoetus* n. gen. *oliveirai* n. sp. (of eyeless depigmented catfishes) 381–390; *Aprasia* (8 spp.) (converg. evol. of myrmecophagy) 390–398; *Poecilia (latipinna, formosa)* (select. for compet. btwn. females for mates, unisex./bisex. diff.) 504–508; *Gasterosteus wheatlandi* (low lateral plate counts due to neoteny) 508–511; *Labroides (phthirophagus, dimidiatus)* (select. pressures for ability to shift btwn. juv. & adult coloration) 520–524; *Ambystoma (tigrinum, macrodactylum)*, *Plethodon jordani* (of adhesiveness in granular gland anti-pred. secr.) 540–541; *Rhynchosirendon* = *Ambystoma (altamirani, rivularis, leorae)*, *Ambystoma (dumerilii, mexicanum, tigrinum, ordinarium)* (of partial paedomorph., rel. to ecol.) 656–662; *Algansea (m. monticola, m. arachidion n. subsp., avia, aphanea, barbata)* (histor. biogeogr., geogr. var. diff. in males & females) 662–676; *Rana sylvatica*, *Bufo americanus* (evol. signif. of opportun. pred. by tdpls.) 691–697; *Eumeces okadae* (adapt. signif. of divers. in life hist. traits in island popns.) 732–747; *Colostethus steppheni* (of unique repro. mode) 747–750; *Salvelinus namaycush* (genet. diverg. btwn. 3 apparent ecophenotypes, sympat. diverg.) 843–850; *Girardinichthys multiradiatus* (of sex. dimorph.) 919–925.

FECUNDITY. *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Lepidochelys (kempfi, olivacea)*, *Natator depressa* (& other reprod. diff. btwn. spp. & popns., rel. to body size) 66–81; *Cyprinodon radiosus* (size of eggs unrel. to size of mother or fry) 100–107; *Sceloporus un-*

dulatus (popn. compar.) 136–152; *Cyclothona kobayashii* n. sp. (of a few specimens) 191–204; *Chelydra serpentina* (leach infest. not reduce turtle fec.) 228–231; snakes (8 fams., 374 spp.) (rel. to sex. size dimorph.) 326–346; *Mycteroptera tigris* (estim. annual fec.) 511–516; *Ichthyomyzon gagei* (geogr. var. rel. to pH & body size) 718–725; *Eumeces okadae* (divers. in island popns. rel. to pred.) 732–747; *Cnemidophorus murinus* (very low) 760–766; *Caiman crocodilus* (in wild) 907–919; *Hyla chrysoscelis* (diff. btwn. prolonged breeder & explosive breeders, year-long ovary anal.) 1014–1022.

FEEDING. *Draco volans sumatranaus* (beh., myrmecoph., video data) 124–130; *Sceloporus (jarrovi, virgatus)*, *Urosaurus ornatus*, *Cophosaurus texanus* (tongue-flicking rel. to foraging) 234–237; *Amphiprion perideraion* (method & rate in larvae) 242–246; *Aprasia* (8 spp.) (myrmecophagy) 390–398; *Serralsalmus*, *Pygocentrus*, *Pristobrycon*, *Pygopristis*, *Catoptrion* (nutr. content of piranha prey items rel. to var. feeding strategies) 524–528; *Rhyacophisredon* = *Ambystoma (altamirani, rivularis, leorae)*, *Ambystoma (dumerili, mexicanum, tigrinum, ordinarium)* (unique type paedomorph., rel. to feeding) 656–662; *Dicamptodon tenebrosus* (larv. diet, diel pitns., ontogen. change) 705–718; *Colostethus stepheni* (unique repro. mode with non-feeding larv.) 747–750.

FOOD. *Draco volans sumatranaus* (myrmecophagy) 124–130; *Sceloporus undulatus* (stom. cont.) 136–152; *Aprasia* (8 spp.) (myrmecophagy) 390–398; *Rana (lessonae, esculenta)* (avail. aff. mat. & pat. contrib. to hatchl. fitness) 406–412; *Hyla regilla* (larv. growth on diff. diets) 446–457; *Serralsalmus*, *Pygocentrus*, *Pristobrycon*, *Pygopristis*, *Catoptrion* (nutr. content of piranha prey: whole fish, fins & scales) 524–528; *Dicamptodon tenebrosus* (larv. diet, ontogen. change) 705–718; *Eumeces okadae* (diet, stom. conts., divers. in island popns. rel. to pred.) 732–747; *Cnemidophorus murinus* (poor qual. rel. to unusual repro.) 760–766; Australian snakes (4 fams., 103 spp.) (prey types rel. to body size) 851–867; squamate reptiles (standardized criteria for embryo. nutrit. determ.) 925–935; *Angolosaurus skoogi* (intake at diff. temps.) 962–974; *Sceloporus jarrovi* (abund. rel. to growth rate var.) 1007–1013; *Hyla chrysoscelis* (abund. may determ. # of clutches in prolonged breeder) 1014–1022.

GENETICS. *Hyla chrysoscelis* × *versicolor* (natural triploid hybrids) 51–59; *Ptychocheilus (lucius, grandis, umpsquae, oregonensis)*, *Mylopharodon conocephalus*, *Lavinia exilicauda* (genome size as phylogen. trait) 60–65; haplochromine cichlids (32 gen., 40 spp.) (very low gen. divers., high morph. divers.) 274–288; squamate reptiles (56 spp.) (rDNA loc., phylogen. anal.) 302–313; *Rana (lessonae, esculenta)* (interact. of mat. & pat. genets. in hatchl. var.) 406–412; *Cyprinodon (elegans, variegatus)* (low level gen. introgression) 590–597; *Richardsonius (balteatus, egregius)* (compare G-banding of NOR's, genome sizes, in phylogen. anal.) 815–818; *Ginglymostoma cirratum* (first triploid indiv. chon-

drichthyian) 825–827; *Salvelinus namaycush* (genet. diverg. btwn. 3 apparent ecophenotypes) 843–850.

GEOGRAPHIC LOCALITIES

Alabama, *Hyla cinerea* 422–432; *Ichthyomyzon gagei* 718–725; *Notropis albizonatus* n. sp. 868–886.

Alaska, *Gasterosteus aculeatus* 314–325; *Stenodus leucichthys* 472–484.

Antigua, sea turtles 808–811.

Arizona, *Cyprinella lutrensis*, *Meda fulgida* 9–19; *Sceloporus (jarrovi, virgatus)*, *Urosaurus ornatus*, *Cophosaurus texanus* 234–237; *Thamnophis marcianus* 537–540; *Sceloporus jarrovi* 1007–1013, 1040–1042; *Cnemidophorus (t. tigris, t. septentrionalis, t. gracilis)* 1047–1050.

Arkansas, *Coluber constrictor priapus* 1–9; *Notropis (suthusi* n. sp., *rubellus*) 82–90; *Ichthyomyzon gagei* 718–725; *Etheostoma zonale* 818–821.

Atlantic Ocean, *Coryphaenoides* (NW) 42–50; *Cyclothona kobayashii* n. sp. (S) 191–204; *Raja (Dipturus) floridana* = *R. (D.) teevani* (NW) 433–445.

Australia, *Varanus rosenbergi* (SA) 289–295; *Champsodon (sagittus* n. sp., *pantolepis* n. sp.) (WA) 347–371; *Champsodon macrouratus* n. sp. (QLD, NSW) 347–371; *Aprasia* (8 spp.) 390–398; *Notoraja ochroderma* n. sp. (QLD) 413–421; *Heteronotia binoei* sp. complex (WA) 484–492; *Acrochordus arafurensis* (NT) 726–731; *Elseya latisternum* (NSW) 802–806; Australian snakes (4 fams., 103 spp.) 851–867; *Neoceratodus forsteri* (QLD) 935–943.

Bahamas, *Anolis sagrei* 598–613.

Belize, *Acanthemblemaria (greenfieldi, paula, maria, spinosa, aspera)*, *Emblemaria pandionis* 398–405.

Borneo, *Draco volans sumatranaus* (Sarawak) 124–130.

Brazil, *Bathyctetopsis* n. gen. *oliveirai* n. sp. 381–390; *Colostethus stepheni* 747–750; *Psammobatis (glans-dissimilis* = *extenta*) 1029–1033.

California, *Ptychocheilus grandis*, *Mylopharodon conocephalus*, *Lavinia exilicauda* 60–65; *Cyprinodon radiosus* 100–107; *Hyla regilla* 446–457; *Myliobatis californica* 529–532; *Crotalus cerastes* 631–645; *Dicamptodon tenebrosus* 705–718; *Sceloporus graciosus* 944–955; *Callisaurus draconoides* 980–992; *Cnemidophorus (t. tigris, t. septentrionalis, t. gracilis)* 1047–1050.

Canada, *Chelydra serpentina* (Ont.) 222–226, 228–231; *Thamnophis (sirtalis, ordinoides)* (Brit. Col.) 263–274; *Salvelinus namaycush* (Ont.) 843–850; *Gadus morhua* (Newf.) 1025–1029.

Caribbean Sea, *Raja (Dipturus) floridana* = *R. (D.) teevani* 433–445; *Neobrythites (unicolor* n. sp., *elognatus* n. sp.) 992–995.

Caroline Is., *Naso (Axinurus) thynnoides* 116–124.

Colorado, *Ambystoma tigrinum* 656–662.

Coral Sea, *Polyipnus (latirastrus* n. sp., *paxtoni*, *elognatus*) 210–215.

Costa Rica, *Chelonia mydas* 34–41.

Florida, *Poecilia latipinna* 27–34; *Chelonia mydas* 34–41; *Neoseps reynoldsi* 91–99; *Hyla cinerea* 422–432; *Gambusia holbrookii*, *Heterandria formosa* 516–520; *Ginglymostoma cirratum* 646–656, 825–827; *Sternotherus minor* 676–684.

France, *Triturus (helveticus, alpestris, cristatus)* 535–537.

French Guyana, *Raja (Dipturus) floridana* = *R. (D.) teevani* 433-445.

Germany, *Palaeobatrachus* sp. 232-233.

Grenada, *Eleutherodactylus euphronides* n. sp. 780-796.

Gulf of Mexico, *Coryphaenoides* 42-50; *Raja (Dipturus) floridana* = *R. (D.) teevani* 433-445.

Hawaii, *Labroides phthirophagus* 520-524; *Thalassoma duperryi*, *Chelonia mydas* 684-690.

Idaho, *Cnemidophorus (l. tigris, t. septentrionalis, t. gracilis)* 1047-1050.

Illinois, *Ambystoma tigrinum* 540-541, 656-662.

Indian Ocean, *Cyclothona kobayashii* n. sp. (S) 191-204.

Indonesia, *Naso (Axinurus) (thynnoides, minor, caerulea cauda* n. sp.) 116-124; *Champsodon sagittus* n. sp. 347-371.

Ivory Coast, *Hyperolius viridiflavus nitidulus* 996-1007.

Jamaica, *Anolis opalinus* 767-780.

Japan, *Naso (Axinurus) thynnoides* 116-124; *Plecoglossus altivelis* 184-190; *Champsodon pantolepis* n. sp. 347-371; *Eumece okadae* 732-747; *Cyprinus carpio* 956-961.

Kansas, *Notropis rubellus* 82-90.

Kentucky, *Notropis albizonatus* n. sp. 868-886.

Kenya, *Afrocaecilia* = *Boulengerula (changamwensis, taitanus)* 750-760.

Lesser Antilles, *Raja (Dipturus) floridana* = *R. (D.) teevani* 433-445; *Eleutherodactylus (urichi, euphronides* n. sp., *shrevei* n. sp.) 780-796.

Liberia, *Osteolaemus tetraspis* 533-535.

Lizard Is., *Labroides dimidiatus* 520-524.

Louisiana, *Ichthyomyzon gagei* 718-725.

Maine, *Gasterosteus wheatlandi* 508-511.

Malawi, haplochromine cichlids (32 gen., 40 spp.) 274-288; *Afrocaecilia* = *Boulengerula (changamwensis, taitanus)* 750-760.

Maldives Is., *Naso (Axinurus) thynnoides* 116-124.

Mexico, *Boa constrictor imperator* 1-9; *Lampræa spadicea* 499-504; *Thamnophis melanogaster* 537-540; *Thorius (aureus* n. sp., *arboreus* n. sp., *boreas* n. sp., *smithi* n. sp., *insuperatus* n. sp., *macdougalii*) (Oax.) 573-590; *Rhyacosiredon* = *Ambysoma (altamirani, rivularis, leorae)*, *Ambystoma (dumerilii, mexicanum, ordinarium)* 656-662; *Algansea (m. monticola, m. archidion n. subsp., avia, aphanea, barbata)* 662-676; *Cyprinella altareadelvillari* n. sp. (Dur.) 897-906; *Girardinichthys multiradiatus* 919-925.

Michigan, *Thamnophis (sirtalis, buitleri)* 537-540; *Salvelinus namaycush* 843-850.

Minnesota, *Ichthyomyzon castaneus* 499-504; *Salvelinus namaycush* 843-850.

Mississippi, *Sceloporus undulatus* 136-152; *Dorosoma cepedianum*, *Pomoxis* spp., *Etheostoma* spp., *Percina* spp., *Lepomis* spp., *Gambusia affinis*, *Cyprinella* spp., *Notropis* spp. 174-183; *Ichthyomyzon gagei* 718-725; *Etheostoma* *lynceum* 821-823; *Etheostoma* *parvipinne* 823-825.

Missouri, *Hyla chrysoscelis* \times *versicolor* 51-59; *Notropis rubellus* 82-90; *Micropterus dolomieu* \times *punctulatus* 204-210.

Mozambique, *Naso (Axinurus) minor* 116-124; *Hyperolius marmoratus taeniatus* 996-1007.

Namibia, *Angolosaurus shoogi* 962-974.

Nebraska, *Chrysemys picta bellii* 1034-1040.

Netherlands Antilles, *Cnemidophorus murinus* 760-766.

Nevada, *Cnemidophorus (l. tigris, t. septentrionalis, t. gracilis)* 1047-1050.

New Guinea, *Champsodon sagittus* n. sp. 347-371.

New Jersey, *Paralichthys dentatus* 458-465.

New Mexico, *Cyprinella lutrensis*, *Meda fulgida* 9-19; *Ptychocheilus lucius* 60-65; *Callisaurus draconoides*, *Cophosaurus texanus* 980-992.

New York, *Petromyzon marinus* 499-504; *Gasterosteus wheatlandi* 508-511.

North Carolina, *Plethodon jordani* 540-541; *Rana sylvatica*, *Bufo americanus* 691-697; *Rana sylvatica*, centrarchid fishes 1023-1025.

Ohio, *Chrysemys picta* 466-471.

Oklahoma, *Notropis (suttkusi* n. sp., *rubellus)* 82-90; *Eumece fasciatus* 493-498.

Oregon, *Ptychocheilus (umpquae, oregonensis)* 60-65; *Ascelichthys rhodorus*, *Oligocottus (maculosus, snyderi)*, *Clinocottus globiceps*, *Anoplarchus purpurescens* 153-158.

Pacific Ocean, *Coryphaenoides* (NE) 42-50; *Cyclothona kobayashii* n. sp. (S) 191-204; *Polypimus (latirastrus* n. sp., *paxtoni*, *elongatus*) (W) 210-215; *Notoraja ochroderma* n. sp. (S) 413-421.

Pakistan, *Naja naja* 1-9.

Panama, *Anolis limifrons* 613-622.

Peru, *Epipedobates trivittatus* 107-115.

Philippines, *Naso (Axinurus) (thynnoides, minor, caerulea cauda* n. sp.) 116-124; *Lycodon (alcalai* n. sp., *bibonius* n. sp., *chrysopraterrus* n. sp., *solivagus* n. sp., *aulicus capucinus*, *subcinctus sealei*, *tessellatus*, *muelleri*, *dumerili*) 159-174; *Champsodon sagittus* n. sp. 347-371.

Puerto Rico, *Mycteroperca tigris* 511-516.

Reunion Is., *Naso (Axinurus) minor* 116-124.

Rhode Island, *Gasterosteus (aculeatus, wheatlandi)* 698-704.

Rwanda, *Boulengerula fischeri* n. sp. 750-760.

St. Vincent, *Eleutherodactylus shrevei* n. sp. 780-796.

Society Is., *Emoia (cyanura, impar)* 1042-1047.

Solomon Is., *Naso (Axinurus) thynnoides* 116-124.

South Carolina, *Coluber constrictor* 20-26; *Gambusia holbrooki*, *Heterandria formosa* 296-302.

South Dakota, *Thamnophis radix* 537-540.

Spain, *Gambusia affinis holbrooki* 216-221.

Suriname, *Raja (Dipturus) floridana* = *R. (D.) teevani* 433-445; sea turtles 808-811.

Switzerland, *Rana (lessonae, esculenta)* 406-412.

Tanzania, *Afrocaecilia* = *Boulengerula uluguruensis*, *Boulengerula boulengeri* 750-760.

Tennessee, *Ichthyomyzon bedellium* 499-504; *Notropis albizonatus* n. sp. 868-886; *Hyla chrysoscelis* 1014-1022.

Texas, *Thamnophis (marianus, proximus)*, *Nerodia (erythrogaster, fasciata, rhombifer)* 226-228; *Scaphiopus couchii* 372-381; *Poecilia (latipinna, formosa)* 504-508; *Cyprinodon (elegans, variegatus)* 590-597; *Ichthyomyzon gagei* 718-725.

Tobago, *Eleutherodactylus urichi* 780-796.

Trinidad, *Eleutherodactylus urichi* 780-796.

Uganda, *Synodontis afrofischeri* 130-135; *Clarias lioccephalus* 246-249.

U. S. Virgin Is., *Acanthemblemaria (maria, spinosa)*,

Emblemaria atlantica 398-405; sea turtles 808-811; *Eretmochelys imbricata* 811-814.

Utah, *Cnemidophorus* (*t. tigris*, *t. septentrionalis*, *t. gracilis*) 1047-1050.

Venezuela, *Autanichthys giacopinii* = *Bryconops giacopinii* 238-242; *Serrasalmus*, *Pygocentrus*, *Pristobrycon*, *Pygopristis*, *Catoptrion* 524-528; *Tupinambis teguixin* 806-808; *Caiman crocodilus* 907-919; *Creagrus hygginus* n. sp. 975-979.

Virginia, *Notropis rubellus* 82-90; *Ichthyomyzon bdellioides* 499-504.

Washington, *Ambystoma macrodactylum* 540-541.

Wisconsin, *Ichthyomyzon castaneus* 499-504; *Salvelinus namaycush* 848-850.

Zaire, *Synodontis nigriventris* 130-135.

GRANULAR GLAND, *Ambystoma* (*tigrinum*, *macrodactylum*), *Plethodon jordani* (anal. of adhesive anti-pred. secr.) 540-541.

GROWTH, *Sceloporus undulatus* (in wild popn.) 136-152; *Palaearachnus* sp. (growth rings in fossil frog bones) 232-233; *Rana* (*lessonae*, *esculenta*) (mat. & pat. contrib. to hatchl. growth) 406-412; *Hyla regilla* (larv. resp. to diff. algae & detritus diets) 446-457; *Eumeces fasciatus* (of embryos after oviposition) 493-498; *Anolis sagrei* (null growth-based models used to anal. sex. size dimorph.) 598-613; *Anolis limifrons* (null growth-based models used to anal. sex. size dimorph.) 613-622; *Acrochordus arafurae* (very slow, sex. dimorph., lower when repro.) 726-731; *Eretmochelys imbricata* (rates in wild juvs., mark & recap.) 811-814; *Sceloporus jarrovi* (rate var. in wild, popns. at diff. altitudes) 1007-1013.

HABITAT, *Cyprinella lutrensis*, *Meda fulgida* (introd. fish alters hab. of native) 9-19; *Coluber constrictor* (radiot. of activ., microhab., home range, popn. compar.) 20-26; *Naso* (*Axinurus*) (*thynnoides*, *minor*, *caeruleoaustralis* n. sp.) (notes) 116-124; *Draco volans sumatranaus* (hab. use, video data) 124-130; *Sceloporus undulatus* (perch type by age-sex class in wild popn.) 136-152; *Chelydra serpentina* (of hibernacula in far north) 222-226; *Scaphiopus couchii* (microhab. of metamorphs., body size rel. to water loss) 372-381; *Acanthembelmaria* (*greenfieldi*, *paula*, *maria*, *spinosa*, *aspera*), *Emblemaria* (*atlantica*, *pandionis*) (partit. in hole-dwelling fishes) 398-405; *Paralichthys dentatus* (pref. in metamorphs. & juvs.) 458-465; *Thorius* (*aureus* n. sp., *arborescens* n. sp., *boreas* n. sp., *smithi* n. sp., *insperatus* n. sp., *macdougalii*) (elevation-specific) 573-590; *Crotalus cerastes* (seas. diff., hibernacula) 631-645; *Gasterosteus* (*aculeatus*, *wheatlandi*) (nest site microhab. pref., compet. & coexist.) 698-704; *Cyprinella alvarezdelvillari* n. sp. (notes) 897-906; *Girardinichthys multiradiatus* (rel. to repro. beh., sex. dimorph.) 919-925; *Creagrus hygginus* n. sp. (notes) 975-979; *Callosaurus draconoides*, *Cophosaurus texanus* (antipred. beh. rel. to hab.) 980-992; *Sceloporus jarrovi* (yearly fluct. in survival at highest elev.) 1040-1042.

HERMAPHRODITISM, *Labroides* (*phthirophagus*, *dimidiatus*) (protogyn., shift btwn. juv. & adult coloration) 520-524.

HIBERNATION, *Chelydra serpentina* (hib. body temps., charcs. of & fidelity to hibernacula) 222-226; *Crotalus cerastes* (solitary, microhab. of hibernacula, seas.) 631-645.

HISTOLOGY, *Gambusia affinis holbrooki* (eff. of temp. & photoper. on testis) 216-221; *Palaearachnus* sp. (growth rings in fossil frog bones) 232-233; *Heteronotia binoei* sp. complex (of ovaries & oviducts, sex. & parthen. forms) 484-492; *Cyprinus carpio* (epidermis thickness, mucus & alarm subst. gland distrib., on scales) 956-961.

HOME RANGE, *Coluber constrictor* (radiotol., popn. compar.) 20-26; *Epipedobates trivittatus* (male territ.) 107-115; *Anolis limifrons* (territor. aff. sex. size dimorph.) 613-622; *Crotalus cerastes* (age-sex class & seas. diff.) 631-645; *Girardinichthys multiradiatus* (male breeding territ.) 919-925; *Sceloporus graciosus* (breeding territ. rel. to "push-up" beh. display) 944-955.

HYBRIDIZATION, *Hyla chrysoscelis* × *versicolor* (natural triploid hybrids, mother deter. by mtDNA) 51-59; *Micropterus dolomieu* × *punctulatus* (introgress., electroph. data) 204-210; *Cyprinodon* (*eleagans*, *variegatus*) (low level introgress. after 20 yrs.) 590-597.

LARVAE, *Dorosoma cepedianum*, *Pomoxis* spp., *Etheostoma* spp., *Percina* spp., *Lepomis* spp., *Gambusia affinis*, *Cyprinella* spp., *Notropis* spp. (distrib. of larv. & juv. fishes in floodplain river) 174-183; *Amphiprion perideraion* (method & rate of 1st feeding by larvae) 242-246; *Rana* (*lessonae*, *esculenta*) (mat. & pat. contrib. in rel. btwn. hatchl. size & fitness) 406-412; *Hyla regilla* (larv. growth on diff. diets) 446-457; *Paralichthys dentatus* (dev. of settlement in metamorphs. & juvs.) 458-465; *Stenodus leucichthys nelma* (descript., dev.) 472-484; *Rana sylvatica*, *Bufo americanus* (opportun. pred. by tpls.) 691-697; *Dicamptodon tenebrosus* (diet, diel pitrs., ontogen. change) 705-718; *Colostethus stepheni* (nidicolous larv., unique devel. mode) 747-750; *Hyperolius* (*viridiflavus* *omostictus*, *v. nitidulus*, *marmoratus* *taeniatus*) (larv. adapt. to crowding aff. metamorphs.) 996-1007.

LATERAL LINE, *Raja* (*Dipturus*) *floridana* = *R. (D.) teevani* (evid. to synon. spp.) 433-445.

LIFE HISTORY, *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Lepidocheles* (*kempfi*, *olivacea*), *Natator depressa* (body size & repro. beh. trait correl. btwn. spp. & popns.) 66-81; *Sceloporus undulatus* (life table compar. btwn. popns.) 136-152; *Rana* (*lessonae*, *esculenta*) (mat. & pat. contrib. in rel. btwn. hatchl. size & fitness) 406-412; *Hyla regilla* (diet diff. aff. time to & wt. at metamorph.) 446-457; *Ichthyomyzon* *gagii* (geogr. var. in fecund., egg size & sex ratio, rel. to pH & body size) 718-725; *Eumeces okadae* (divers. in life hist. traits in island popns. rel. to pred.) 732-747; Australian snakes (4 fams., 103 spp.) (most interspp. diff. rel. to body size) 851-867; *Caiman crocodilus* (repro. factors in wild) 907-919.

LIGHT, *Gambusia affinis holbrooki* (eff. of photoper.

& temp. on spermatogen.) 216-221; *Hyla cinerea* (brightness aff. color change) 422-432.

LOCOMOTION, *Draeo volans sumatranaus* (gliding & other mvmts., video data) 124-130; *Synodontis (nigritriensis, afrofischeri)* (respir. funct. for upside-down swimming) 130-135; *Sceloporus (jarrovi, virgatus)*, *Urosaurus ornatus*, *Cophosaurus texanus* (rel. to tongue-flicking) 234-237; *Paralichthys dentatus* (burying beh. in metamorphs. & juvs.) 458-465; *Chrysemys picta* (body size rel. to gait & speed on land) 466-471; *Crotalus cerastes* (side-winding & other mvmts., direct., dist., seas. diff.) 631-645; *Bufo marinus* (max. sustained speed rel. to physiol. & morph. factors) 887-896; *Callisaurus draconoides*, *Cophosaurus texanus* (antipred. beh. correl. w/ loco. abil.) 980-992.

METHODS, *Thamnophis (marianus, proximus)*, *Nerodia (erythrogaster, fasciata, rhombifer)* (safety of PIT tags on snakes, lab. & field tests) 226-228; *Anolis sagrei* (null growth-based models used to anal. sex. size dimorph.) 598-613; *Anolis limifrons* (null growth-based models used to anal. sex. size dimorph.) 613-622; *sea turtles* (cheap method to meas. daily av. nest temp.) 808-811; *Etheostoma lynceum* (eff. of diff. drying temps. on egg weight meas.) 821-823; squamate reptiles (standardized criteria for embryo. nutrit. determ.) 925-935.

MIGRATION, *Chelonia mydas* (natal homing, mt-DNA evid.) 34-41; *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Lepidochelys (kempi, olivacea)*, *Natator depressa* (repro. traits at nesting rel. to body size, spp. & popn. compar.) 66-81; *Chelydra serpentina* (to hibernacula) 222-226; *Thamnophis (sirtalis, ordinoides)* (orient. beh. in non-migrat. popns.) 263-274; *Mycteroperca tigris* (to spawning site) 511-516; *Crotalus cerastes* (to & from hibernacula) 631-645.

MITOCHONDRIAL DNA, *Naja naja*, *Vipera ammodytes*, *Coluber constrictor priapus*, *Boa constrictor imperator* (phylogen. anal., evol. of front-fanged venom sys.) 1-9; *Chelonia mydas* (evid. for natal homing, high divers. in FL popn.) 34-41; *Hyla chrysoscelis* × *versicolor* (deter. of natural hybrid mothers) 51-59; haplochromine cichlids (32 gen., 40 spp.) (phylogen. anal., Lake Malawi) 274-288.

MORPHOLOGY, *Stenodus leucichthys nelma* (descript. & illus. of larvae & juvs.) 472-484; *Heteronotia binoei* sp. complex (of ovaries & oviducts, sex. & parthen. forms) 484-492; *Rhyacosiredon* = *Ambystoma (altamirani, rivularis, leorae)*, *Ambystoma (dumerilii, mexicanum, tigrinum, ordinarium)* (unique type paedomorph., rel. to ecol.) 656-662.

NESTING, *Chelonia mydas* (natal homing, mtDNA evid.) 34-41; *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Lepidochelys (kempi, olivacea)*, *Natator depressa* (repro. traits at nesting rel. to body size, spp. & popn. compar.) 66-81; *Osteolaemus tetraspis* (of captive female near natural hab.) 533-535; *Gasterosteus (aculeatus, wheatlandi)* (site competit.) 698-704; *Colostethus*

stepheni (unique repro. mode) 747-750; *sea turtles* (cheap method to meas. daily av. nest temp.) 808-811; *Caiman crocodilus* (seas., freq., mat., clutch & egg size) 907-919.

NOMENCLATURE, *Autanichthys giacopinii* = *Bryconops giacopinii* (synon., neotype design., redescr.) 238-242; haplochromine cichlids (32 gen., 40 spp.) (evid. of polyphyly in *Copadichromis* & *Asatotilapia*) 274-288; *Champsodon* (10 spp., *sagitus* n. sp., *pantolepis* n. sp., *machaeratus* n. sp.) (synon. spp., standardize descripts.) 347-371; *Raja (Dipurus) floridana* = *R. (D.) leevani* (synon. spp.) 439-445; *Rhyacosiredon* = *Ambystoma (altamirani, rivularis, leorae)*, *Ambystoma (dumerilii, mexicanum, tigrinum, ordinarium)* (synon. genus, phylogen. anal., osteol. & alloz. data) 656-662; *Afrocaecilia* = *Boulengerula (changamwensis, taitanus, uluguruensis)*, *Boulengerula* (boulengeri, fischeri n. sp.) (synon. gen., n. sp., clad. anal.) 750-760; *Eleutherodactylus (urichi, euphrionides* n. sp., *shrevei* n. sp.) (elevate subsp.) 780-796; *Psammobatis (glandsissimilis* = *extenta*) (available senior synonym, lectotype & paralects. design.) 1029-1033.

OLFACTION, *Poecilia latipinna* (olf. cues in female advrtsmnt.) 27-34; *Sceloporus (jarrovi, virgatus)*, *Urosaurus ornatus*, *Cophosaurus texanus* (timing of tongue-flicking) 234-237; *Thamnophis (sirtalis, ordinoides)* (pherom. following beh.) 263-274; *Bathyelopis* n. gen., *oliveirai* n. sp. (enlarged olf. organs in eyeless catfishes) 381-390.

OSTEOLOGY, *Gasterosteus aculeatus* (evol. of pelvic reduction) 314-325; *Hybognathus* (all 7 spp.) (osteol. charcs. in phylogen. anal.) 622-630; *Rhyacosiredon* = *Ambystoma (altamirani, rivularis, leorae)*, *Ambystoma (dumerilii, mexicanum, tigrinum, ordinarium)* (rel. to paedomorph.) 656-662; *Salvelinus namaycush* (evid. for genet. diverg. btwn. 3 apparent ecophenotypes) 843-850.

PALEONTOLOGY, *Palaeobatrachus* sp. (growth rings in fossil frog bones) 232-233.

PARASITISM, *Chelydra serpentina* (leach infest. not reduce turtle repro.) 228-231; *Petromyzon marinus*, *Ichthomyzon (castaneus, bdellium)*, *Lampetra spadicea* (of lampreys on small fishes) 499-504; *Thalassoma duperryi*, *Chelonia mydas* (wrasses remove parasites from turtles) 684-690.

PARTHENOGENESIS, *Heteronotia binoei* sp. complex (repro. morph. in sex. & parthen. forms) 484-492; *Poecilia (latipinna, formosa)* (compet. btwn. females for mates, unisex./bisex. diff.) 504-508.

PATHOLOGY, *Neoceratodus forsteri* (in wild eggs hatched in lab) 935-943.

PERHOMONES, *Poecilia latipinna* (male response to female chem. & vis. advrtsmnt.) 27-34; *Sceloporus (jarrovi, virgatus)*, *Urosaurus ornatus*, *Cophosaurus texanus* (rel. to tongue-flicking) 234-237; *Thamnophis (sirtalis, ordinoides)* (following conspecific trails) 263-274.

PHYLOGENETIC ANALYSIS, *Naja naja*, *Vipera*

ammodytes, *Coluber constrictor priapus*, *Boa constrictor imperator* (clad. anal., mtDNA data, rel. to evol. of front-fanged venom sys.) 1-9; *Coryphaenoides* (3 of the 4 subgen.) (4 methods, allelic freq. & peptide map data) 42-50; *Ptychocheilus* (*lucius*, *grandis*, *umpquae*, *oregonensis*), *Mylopharodon conocephalus*, *Levinia exilicauda* (clad. anal., NOR kar., genome size data) 60-65; *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Lepidochelys (kempfi, olivacea)*, *Natator depressa* (repro. traits & body size correl. data, mult. popns.) 66-81; *Notropis (suttkusi n. sp.*, *rubellus*, *atherinoides*, *oligospis*, *percobromus*) (clad. notes, morph. & pigment data) 82-90; *Naso (Aximirurus)* (*hyphinooides*, *minor*, *caerulea* *cauda n. sp.*) (clad. notes on subgenus) 116-124; *Polyipnus (latirastrus n. sp.*, *paxtoni*, *elongatus*) (mult. charcs., *P. spinosus* sp. group) 210-215; *Autanichthys giacopinii* = *Bryconops giacopinii* (notes on synon., compar. to congeners) 238-242; *haplochromine cichlids* (32 gen., 40 spp.) (clad. & phenetic anal., mtDNA data) 274-288; *squamate reptiles* (56 spp.) (clad. anal., rDNA loc.) 302-313; *Notoraja ochroptera* (spp. sp. (notes on rel. btwn. genera) 413-421; *Gasterosteus wheatlandi* (low lateral plate counts deter. as synapomorphy for *Gasterosteus*) 508-511; *Hybognathus* (all 7 spp.) (clad. anal., osteol. & alloz. charcs.) 622-630; *Rhacosiredon* = *Ambystoma (alamirani*, *rivalaris*, *leorae*), *Ambystoma (dumerilii*, *mexicanum*, *tigrinum*, *ordinarium*) (unique type paedomorph., polyphyl., clad. anal., osteol. & alloz. data) 656-662; *Afrocaecilia* = *Boulengerula* (*changauensis*, *tailanus*, *uluguruensis*), *Boulengerula* (*boulengeri*, *fischeri n. sp.*) (clad. anal., morph. data) 750-760; *Richardsonius* (*balteatus*, *egregius*) (clad. affin. determ. with C-banding of NOR's) 815-818; *Etheostoma zonale* (repro. beh. in phylogen. anal.) 818-821; *Salvelinus namaycush* (of genet. diverg. btwn. 3 apparent ecophenotypes, osteol. data) 843-850; Australian snakes (4 fams., 103 spp.) (phylogen. conserv. in interspp. ecol. diff.) 851-867; *Notropis (albizonatus n. sp.*, *procne* sp. group) (clad. anal. of sp. group, biogeogr. hypoth.) 868-886; *Cyprinella alvarezi* *williamsi* n. sp. (clad. rels. to *C. lepida* clade) 897-906.

PHYSIOLOGY, *Neoseps reynoldsi*, *Sphenops sepsoides* (convergence in unrelated sand-swimming lizards) 91-99; *Synodontis (nigritriensis*, *afrofischeri*) (resp. funct. for upside-down swimming) 130-135; *Ascelichthys rhodorus*, *Oligocottus (maculosus*, *snyderi*), *Clinocottus globiceps*, *Anoplarchus purpurascens* (air resp., temperate intertidal fish) 153-158; *Varanus rosenbergi* (popn. energetics, seas. var.) 289-295; *Scaphiopus couchii* (water balance rel. to size of metamorphs.) 372-381; *Hyla cinerea* (color change) 422-432; *Eumeces fasciatus* (calcium utiliz. in dev. embryos) 493-498; *Serrasalmus*, *Pygocentrus*, *Pristobrycon*, *Pygopristis*, *Catoptrion* (nutr. content of piranha prey items) 524-528; *Myliobatis californica* (eff. of temp. on O₂ consump. across wide range of temps.) 529-532; *Ambystoma (tigrinum*, *macrodactylum*), *Plethodon jordani* (anal. of adhesive anti-pred. granular gland secr.) 540-541; *Elseya latisternum* (body structs. involved in aquat. resp.) 802-806; *Bufo marinus* (unexpected lack of correl. btwn. many physiol & morph. factors & exercise) 887-896; *Angolosaurus skoogi* (energy & water intake, met. rate, evap. water loss, rel. to temp.) 962-974; *Hyperolius (viridiflavus* *omatostictus*, *v. nitidulus*, *marmoratus* *taeniatus*) (larv. adapt. to crowding aff. metamorphs.) 996-1007.

POPULATIONS, *Coluber constrictor* (radiot. of activ., microhab., home range; popn. compar.) 20-26; *Chelonia mydas* (natal homing, diff. male & female popn. components, mtDNA evid.) 34-41; *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Lepidochelys (kempfi*, *olivacea*), *Natator depressa* (reprod. diff. btwn. spp. & popns., rel. to body size) 66-81; *Sceloporus undulatus* (popn. compar. of repro., mortal., growth, popn. dens.) 136-152; *Plecoglossus altivelis* (repro. charcs. of land-locked & amphidromous popns.) 184-190; *Thamnophis (sirtalis*, *ordinoides*) (compare orient. beh. in non-migr. popns. of migr. & non-migr. spp.) 263-274; *Varanus rosenbergi* (popn. energetics, seas. var., rel. to other popns.) 289-295; *Gambusia holbrooki*, *Heterandria formosa* (pred. vs. compet. btwn. spp., exper. popns.) 296-302; *Gasterosteus aculeatus* (independent evol. of pelvic reduction in diff. popns.) 914-925; *Gasterosteus wheatlandi* (lateral plate counts vary clinally, N to S) 508-511; *Gambusia holbrooki*, *Heterandria formosa* (popn. dens. in a swamp) 516-520; *Ichthyomyzon gagei* (geogr. var. in fecund., egg size & sex ratio, rel. to pH & body size) 718-725; *Eumeces okadai* (divers. in life hist. traits in island popns. rel. to pred.) 732-747; *Cirrhilabrus mulleri* (popn. diff., in male agg. & sex. dimorph.) 919-925; *Callisaurus draconoides*, *Cophosaurus texanus* (interpopn. diff., in antipred. beh. rel. to environ. factors) 980-992; *Sceloporus jarrovii* (interpopn. growth rate compar., rel. to food abund.) 1007-1013; *Chrysemys picta bellii* (egg size & shape var. btwn. popns., rel. to mat. & clutch size) 1034-1040.

PREDATION, *Draco volans sumatrani* (sit-&-wait pred., myrmecophagy) 124-130; *Sceloporus undulatus* (prey type from stom. cont., injury due to pred.) 136-152; *Chelydra serpentina* (on turtles during hiber.) 222-226; *Amphiprion periderion* (video of feeding strikes by larvae) 242-246; *Clarias liophthalmus* (synchronous air-breathing as pred. defense) 246-249; *Gambusia holbrooki*, *Heterandria formosa* (pred. vs. compet. btwn. spp., exper. popns.) 296-302; *Gasterosteus aculeatus* (rel. to evol. of pelvic reduction) 314-325; *Aprasia* (8 spp.) (body size rel. to prey size in myrmecophagy) 390-398; *Hyla cinerea* (color change rel. to pred. detect. & temp.) 422-432; *Paralichthys dentatus* (rel. to burying beh. in metamorphs. & juvs.) 458-465; *Gambusia holbrooki*, *Heterandria formosa* (of *G. holbrooki* on *H. formosa*, of both on invertebrates) 516-520; *Serrasalmus*, *Pygocentrus*, *Pristobrycon*, *Pygopristis*, *Catoptrion* (nutr. content of piranha prey items rel. to var. pred. strategies) 524-528; *Triturus (helvetica*, *alpestris*, *cristatus*) (egg-wrapping reduces egg pred.) 535-537; *Ambystoma (tigrinum*, *macrodactylum*), *Plethodon jordani*

dani (anal. of adhesive anti-pred. granular gland секр.) 540-541; *Rana sylvatica*, *Bufo americanus* (opportun. pred. by tdpis., evol. signif.) 691-697; *Dicamptodon tenebrosus* (prey types of larv., stom. conts., ontogen. change) 705-718; *Eumeces okaiae* (strong eff. on divers. in life hist. traits in island popns.) 732-747; Australian snakes (4 fams., 103 spp.) (prey types rel. to body size) 851-867; *Callisaurus draconoides*, *Cophosaurus texanus* (antipred. beh. rel. to environ. factors) 980-992; *Rana sylvatica*, centrarchid fishes (frogs choose fish-free ponds to lay eggs) 1023-1025.

REPRODUCTION, *Poecilia latipinna* (male response to female advrtsmnt., mating beh.) 27-34; *Chelonia mydas* (natal homing, mtDNA evid.) 34-41; *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Lepidochelys kempi*, *olivacea*), *Natator depressa* (reprod. diff. btwn. spp. & popns., rel. to body size) 66-81; *Cyprinodon radiosus* (size of eggs unrel. to size of mother or fry) 100-107; *Epipedobates trivittatus* (territ. & calls rel. to male mating success) 107-115; *Draco volans sumatrana* (ctshp. beh.) 124-130; *Sceloporus undulatus* (ann. var., popn. compar., matur. age, fec.) 136-152; *Dorosoma cepedianum*, *Pomoxis spp.*, *Etheostoma spp.*, *Percina spp.*, *Lepomis spp.*, *Gambusia affinis*, *Cyprinella spp.*, *Notropis spp.* (seas. rel. to distrib. of larv. & juv. fishes in floodplain river) 174-183; *Plecoglossus altivelis* (compare landlocked & amphidromous popns.) 184-190; *Cyclothone kobayashii* n. sp. (seas., fec.) 191-204; *Gambusia affinis holbrooki* (eff. of temp. & photoper. on spermatogen.) 216-221; *Chelydra serpentina* (leach infest. not reduce turtle repro.) 228-231; snakes (8 fams., 374 spp.) (sex. size dimorph. rel. to repro.) 326-346; *Aprasia* (8 spp.) (ovipar., repro. seas.) 390-398; *Heteronotia binoei* sp. complex (repro. morph. in sex. & parthen. forms) 484-492; *Poecilia (latipinna, formosa)* (compet. beh. btwn. females for mates, unisex./bisex. diff.) 504-508; *Mycteroptera tigris* (seas., aggreg., ctshp., spawning, video data) 511-516; *Osteolaemus tetraspis* (plasma estradiol & testost. changes in captives near natural hab.) 533-535; *Triturus (helveticus, alpestris, cristatus)* (egg-wrapping reduces egg pred.) 535-537; *Ginglymostoma cirratum* (matting incl. cop., video) 646-656; *Sternotherus minor* (ctshp. beh., video data) 676-684; *Rana sylvatica*, *Bufo americanus* (impact of opportun. pred. by tdpis. on breeding site choice of other anurans) 691-697; *Gasterosteus (aculeatus, wheatlandi)* (nest site competit.) 698-704; *Ichthyomyzon gagei* (geogr. var. in fecund. & egg size, rel. to pH & body size) 718-725; *Ichthyomyzon gagei* (reduces growth rates, both genders) 726-731; *Colostethus stepheni* (unique repro. mode) 747-750; *Cnemidophorus murinus* (unusual, no seas., one lg. egg, unusual sex. dimorph.) 760-766; *Anolis opalinus* (high repro. rate, males non-seas., females seas.) 767-780; sea turtles (cheap method to meas. daily av. nest temp.) 808-811; *Etheostoma zonale* (repro. beh. in phy-

logen. anal.) 818-821; *Etheostoma lynceum* (eff. of diff. drying temps. on egg weight meas.) 821-823; *Etheostoma parvipinne* (spawning beh. in captiv.) 823-825; *Salvelinus namaycush* (repro. seas. isolates 3 apparent ecophenotypes) 843-850; Australian snakes (4 fams., 103 spp.) (most interspp. diff. rel. to body size) 851-867; *Caiman crocodilus* (seas. in wild, mult. factors) 907-919; *Girardinichthys multiradiatus* (beh., rel. to sex. dimorph.) 919-925; squamate reptiles (standardized criteria for embryo nutrit. determ.) 925-935; *Sceloporus graciosus* (complex. of "push-up" display, rel. to repro. factors) 944-955; *Hyla chrysoscelis* (year-long ovar. cycles diff. in prolonged breeder vs. explosive breeders) 1014-1022; *Rana sylvatica*, centrarchid fishes (frogs choose fish-free ponds to lay eggs) 1023-1025; *Gadus morhua* (sperm viable over 60 min. in sea water) 1025-1029; *Chrysemys picta bellii* (egg size & shape var. btwn. popns., rel. to mat. & clutch size) 1034-1040; *Cnemidophorus (l. tigris, l. septentrionalis, l. gracilis)* (body size rel. to clutch size & elevation) 1047-1050.

RESPIRATION, *Synodontis (nigriventris, afrofischeri)* (resp. funct. for upside-down swimming) 130-135; *Ascelichthys rhodorus*, *Oligocottus (maculosus, synderi)*, *Clincottus globiceps*, *Anoplarchus purpureus* (air resp., temperate intertidal fish) 153-158; *Chelydra serpentina* (oxy. avail. during hiber.) 222-226; *Clarias liopcephalus* (synchronous air-breathing) 246-249; *Myliobatis californica* (eff. of temp. on O₂ consump. across wide range of temps.) 529-532; *Elseya latisternum* (body structs. involved in aquat. resp.) 802-806; *Bufo marinus* (metab. data rel. to morph. & exercise) 887-896.

SALINITY, *Plecoglossus altivelis* (larv. size rel. to salin. toler.) 184-190; *Paralichthys dentatus* (rel. to burying beh. in metamorphs. & juvs.) 458-465.

SEX, *Sceloporus undulatus* (ratios in wild popn.) 136-152; *Crotalus cerastes* (age-sex class & seas. diff. in act. & mvmnts.) 631-645; *Ichthyomyzon gagei* (geogr. var. in sex ratio) 718-725; sea turtles (cheap method to meas. nest temp. for sex determ. info.) 808-811; *Girardinichthys multiradiatus* (operat. sex ratios during ctshp.) 919-925.

SEXUAL DIMORPHISM, *Draco volans sumatrana* (size & color) 124-130; snakes (8 fams., 374 spp.) (in size, rel. to repro.) 326-346; *Aprasia* (8 spp.) (body size, dentit.) 390-398; *Hyla cinerea* (in color) 422-432; *Mycteroptera tigris* (size dimorph. in spawning aggreg.) 511-516; *Anolis sagrei* (null growth-based models used to anal. sex. size dimorph.) 598-613; *Anolis limifrons* (sex. size dimorph. due to small males hiding) 613-622; *Alagama (m. monticola, m. archidion n. subsp., avia, aphanea, barbata)* (in fin length) 662-676; *Acrochordus arafurea* (in size, matur., growth, greater diff. than in other snakes) 726-731; *Cnemidophorus murinus* (unusual, in size & color) 760-766; *Anolis opalinus* (in size) 767-780; *Hyla squirella* (in

color ptn. & intens.) 797-802; Australian snakes (4 fams., 103 spp.) (interspp. diffs. mostly rel. to body size diffs.) 851-867; *Bufo marinus* (female hearts larger) 887-896; *Caiman crocodilus* (males much bigger) 907-919; *Girardinichthys multiradiatus* (male ornament., rel. to factors of sex. select.) 919-925; *Sceloporus graciosus* (in "push-up" beh. display) 944-955.

SIZE, *Careta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, *Lepidochelys (kempi, olivacea)*, *Natator depressa* (reprod. diffs. btwn. spp. & popns., rel. to body size) 66-81; *Cyprinodon radiosus* (of eggs unrel. to size of mother or fry) 100-107; *Sceloporus undulatus* (in wild popn.) 136-152; *Plecoglossus altivelis* (of eggs rel. to salin., temp., seas., mat. size) 184-190; snakes (8 fams., 374 spp.) (select. factors in sex. size dimorph.) 326-346; *Scaphiopus couchii* (at metamorph. rel. to water loss) 372-381; *Aprasia* (8 spp.) (sex. dimorph., body size rel. to prey size) 390-398; *Rana (lessonae, esculenta)* (mat. & pat. contrib. to hatchl. dev. & size) 406-412; *Paralichthys dentatus* (rel. to burying beh. in metamorphs. & juvs.) 458-465; *Chrysemys picta* (body size rel. to gait & speed on land) 466-471; *Petromyzon marinus*, *Ichthyomyzon (castaneus, bdelium)*, *Lampetra spadicea* (parasitism on small hosts) 499-504; *Gambusia holbrooki*, *Heterandria formosa* (body size of *H. formosa* aff. by *G. holbrooki* pred.) 516-520; *Labrodes (phthirophagus, dimidiatus)* (body size rel. to shift btwn. juv. & adult coloration) 520-524; *Thamnophis (radix, sirtalis, bulleri, marcianus, melanogaster)* (min. temper. toler. rel. to body size and latitude of sp. range) 537-540; *Thorius (aureus n. sp., arboreus n. sp., boreas n. sp., smithi n. sp., insperatus n. sp., macdougalii)* (among smallest tetrapods) 573-590; *Anolis sagrei* (null growth-based models used to anal. sex. size dimorph.) 598-613; *Anolis limifrons* (sex. size dimorph. due to small males hiding) 613-622; *Gasterosteus (aculeatus, wheatlandi)* (body size rel. to nest site compet.) 698-704; *Dicamptodon tenebrosus* (size-select. of prey by larv., ontogen. change) 705-718; *Ichthyomyzon gagei* (geogr. var. in fecund. & egg size, rel. to pH & body size) 718-725; *Eumeces okadai* (divers. in island popns. rel. to pred.) 732-747; *Cnemidophorus murinus* (unusual size dimorph.) 760-766; *Anolis opalinus* (fem. size rel. to egg size not #, sex. dimorph.) 767-780; *Tupinambis teguixin* (free-living body temps. in lg. lizard) 806-808; Australian snakes (4 fams., 103 spp.) (eff. of body size on interspp. ecol. diffs.) 851-867; *Bufo marinus* (body size rel. to physiol. & morph. factors & exercise) 887-896; *Caiman crocodilus* (body size, at sex. matur., rel. to clutch size & freq., egg size) 907-919; squamate reptiles (rel. size of egg, neonate & mother not useful in embryon. nutrit. determ.) 925-935; *Chrysemys picta bellii* (egg size & shape var. btwn. popns., rel. to mat. & clutch size) 1034-1040.

SURVIVAL, *Sceloporus undulatus* (survivorshp in wild popn.) 136-152; *Triturus (helveticus, alpestris, cristatus)* (egg-wrapping increases egg survival) 535-

537; *Neoceratodus forsteri* (low in eggs hatched in lab) 935-943; *Sceloporus jarrovi* (yearly fluct. in surv. at highest elev.) 1040-1042.

SYMBIOSIS, *Thalassoma duplex*, *Chelonia mydas* (btwn. cleaner wrasse & turtles) 684-690.

SYSTEMATICS, *Coryphaenoides* (3 of the 4 subgen.) (phylogen. anal., genet. data) 42-50; *Ptychocheilus (lucius, grandis, umpsquae, oregonensis)*, *Mylopharodon conocephalus*, *Lavinia exilicauda* (phylogen. anal., possible n. sp. of *Ptychocheilus*, NOR kar. & genome size data) 60-65; *Notropis (suttkusi n. sp., rubellus, atherinoides, oligaspis, percobromus)* (n. sp., phylogen. anal. of close rels., possible hybrid.) 82-90; *Naso (Axinurus)* (thynnoides, minor, cæruleacauda n. sp.) (clad. anal., diagn. of subgenus, key to spp., descr. all spp.) 116-124; *Lycodon (alcalai n. sp., bibonius n. sp., chrysopateros n. sp., solivagus n. sp., aulicus capucinus, subcinctus sealei, tessellatus, muelleri, dumerili)* (n. spp., key to all spp., zoogeogr. & hab. notes) 159-174; *Cyclothone kobayashii* n. sp. (key to the 8 S. Ocean spp. of genus) 191-204; *Polyipnus (latirastrus n. sp., paxtoni, elongatus)* (phylogen. anal., *P. spinosus* sp. group) 210-215; *Autanichthys giacopinii* = *Bryconops giacopinii* (synon., neotype design., phylogen. discuss. of genus, compar. to *B. melanurus*) 238-242; haplochromine cichlids (32 gen., 40 spp.) (clad. & phenetic anal., mtDNA data, evid. of polyphyly, rapid evol.) 274-288; squamate reptiles (56 spp.) (phylogen. anal., rDNA loc. data) 302-313; *Champsodon* (10 spp., *sagittus* n. sp., *pantolepis* n. sp., *maucheratus* n. sp.) (redescri. & synon. spp., key to spp.) 347-371; *Notoraja ochroderma* n. sp. (phylogen. notes on rel. btwn. genera) 413-421; *Raja (Dipturus) floridana* = *R. (D.) teevani* (synon. spp., truss anal., merist. & sens. syst. data) 433-445; *Stenodus leucichthys nelma* (eggs, larvae & juvs. disting. from other sympatric whitefishes) 472-484; *Thorius (aureus n. sp., arboreus n. sp., boreas n. sp., smithi n. sp., insperatus n. sp., macdougalii)* (n. spp., endemic, elevation-specific, sympatry) 573-590; *Hybognathus* (all 7 spp.) (clad. anal., osteol. & alloz. charcs.) 622-630; *Rhyacosideron* = *Ambystoma (altamiranum, rivularis, leorae)*, *Ambystoma (dumerilii, mexicanum, tigrinum, ordinatum)* (synon. genus, phylogen. anal., osteol. & alloz. data) 656-662; *Algansea (m. monticola, m. archidion n. subsp., avia, aphanea, barbata)* (n. subsp., histor. biogeogr.) 662-676; *Afrocaecilia* = *Boulengerula (changamwensis, taitanus, uluguruensis)*, *Boulengerula (boulengeri, fischeri n. sp.)* (synon. gen., n. sp., phylogen. anal., extend ranges, key to spp.) 750-760; *Eleutherodactylus (urichi, euphronides n. sp., shrevei n. sp.)* (elevate subsp., redscripts., morphol., calls & allozyme data, key to all Carib. spp.) 780-796; *Richardsonius (baleatus, egregius)* (clad. affin. determ. with G-banding of NOR's) 815-818; *Notropis (albizonatus n. sp., procne sp. group)* (phylogen. anal. of sp. group) 868-886; *Cyprinella alvarezdelvillarii n. sp.* (n. sp., notes on & key to *C. lepida* clade) 897-906; *Creagrutus hysginus* n. sp. (n. sp.) 975-979; *Neobythites (unicolor n. sp., elongatus n. sp.)* (n. spp., compared

to congeners) 992-995; *Emoia (cyanura, impar)* (valid. of spp., allozyme data) 1042-1047.

TEMPERATURE, *Neoseps reynoldsi* (body temp., diel & seas. ptns.) 91-99; *Dorosoma cepedianum*, *Pomoxis* spp., *Etheostoma* spp., *Percina* spp., *Lepomis* spp., *Gambusia affinis*, *Cyprinella* spp., *Notropis* spp. (rel. to distrib. o' larv. & juv. fishes in floodplain river) 174-183; *Plecoglossus altivelis* (egg size rel. to temp. toler.) 184-190; *Gambusia affinis holbrookii* (eff. of temp. & photoper. on spermatogen.) 216-221; *Chelydra serpentina* (body temp. during hiber., chars. of hibernacula) 222-226; *Varanus rosenbergi* (body temp. during diff. beh., rel. to popn. energetics) 289-295; *Hyla cinerea* (color change rel. to temp.) 422-432; *Paralichthys dentatus* (rel. to burying beh. in metamorphs. & juvs.) 458-465; *Myliobatis californica* (eff. of temp. on O² consump. across wide range of temps.) 529-532; *Thamnophis (radix, sirtalis, butleri, marcianus, melanogaster)* (min. temper. toler. rel. to latitude of sp. range) 537-540; *Elseya latisternum* (aquat. resp. at diff. temps.) 802-806; *Tupinambis teguixin* (free-living body temps. rel. to activ. in lg. lizard) 806-808; sea turtles (cheap method to meas. daily av. nest temp.) 808-811; *Etheostoma lynceum* (eff. of diff. drying temps. on egg weight meas.) 821-823; *Angolosaurus shoogi* (water balance & met.

rate at diff. temps.) 962-974; *Callisaurus draconoides*, *Cophosaurus texanus* (aff. antipred. beh.) 980-992.

TRUSS ANALYSIS, *Raja (Dipturus) floridana* = *R. (D.) teevani* (evid. to synon. spp.) 433-445.

VARIATION, *Gasterosteus aculeatus* (btwn. popns., degree of pelvic reduction) 314-325; *Gasterosteus wheatlandi* (geogr. var. in lateral plate counts) 508-511; *Anolis limifrons* (seas. var. in sex. size dimorph.) 613-622; *Ichthyomyzon gagei* (geogr. var. in fecund., egg size & sex ratio, rel. to pH & body size) 718-725.

VENOM, *Naja naja*, *Vipera ammodytes*, *Coluber constrictor priapus*, *Boa constrictor imperator* (evol. of front-fanged venom systs.) 1-9; *Natrix tessellata*, *Crotalus atrox* (inhib. of *Crotalus* venom hemorrhage effs. by embryo. and ad. *Natrix*) 1050-1053.

VISION, *Bathycetopsis* n. gen. *oliveirai* n. sp. (evol. of eyeless depigmented catfishes) 381-390; *Hyla cinerea* (rel. to color change) 422-432.

WATER BALANCE, *Scaphiopus couchii* (rel. to size of metamorphs.) 372-381; *Angolosaurus shoogi* (water intake, evap. water loss, met. rate, rel. to temp.) 962-974.

